

ITEMS OF INTEREST.

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ORIGINAL COMMUNICATIONS.

PORCELAIN DENTAL ART.

W. A. Capon, D.D.S., Philadelphia.

[CONTINUED FROM PAGE 4, JAN., 1895.]

This system covers various kinds of crowns, offering many means of overcoming difficult cases, enabling the ingenious dentist to make or carve one or more teeth to any shape to fit any peculiarity. There are pin crowns of all kinds, with or without collars, to fit neck of roots. Crowns with tubes to fit over posts, screwed into the canals, and crowns of solid porcelain, slightly concaved, to be used without pin or post. But the most useful of all kinds is the jacket crown, which I will describe and illustrate later on. The universal use of "store" crowns, either pin or tube, can be attributed to the fact that little skill or time is required to adjust them, and, when nicely mounted, look very natural; but there are many places where a ready-made crown cannot be used to the best advantage, and then a knowledge of porcelain, with the proper appliance, will prove very valuable, saving much time and annoyance to the patient, and after some practice it will be unnecessary to buy a crown for any work.

In making a banded porcelain crown, the first preparation is similar to that of a Richmond, excepting that the metal used is entirely platinum and the plate tooth should have no backing; the pins extend to the post, which is left projecting through the cap to allow of soldering, thereby holding facing in position and porcelain added till the desired shape is obtained. A crown without band is made in the same manner, though in either case a pin tooth is not strictly necessary, for thin veneers are used with the advantage of less danger to check while heating. When veneers are used a foundation of porcelain must be made first, so that veneer will be held in position more easily. Having a proper quantity of biscuited body on the crown will also prevent the veneer from falling out of position by shrinkage.

A tube crown is made somewhat different, as the first proceeding is to thread the canal, and use a post of the home pattern, or

something similar. The end of the screw should be dipped in thin cement and then turned into place, allowing excess cement to cover face of root, and amalgam packed over that surface and surround the screw, thus making a very strong and almost indestructible foundation. After this has become sufficiently hard, prepare for the crown by making a platinum tube to fit the projecting post in the following manner: Take a spare post, the same as that already used, and twist platinum foil about it, which will form the tube exactly, then take a small piece of the same foil of sufficient size to cover the root, and puncture a hole in the center and slide over the tube already on the post; draw it off carefully, and solder with the smallest possible quantity of pure gold. This being done, there will be a platinum affair that will cover tube and face of root, which only requires burnishing around edges and is ready for the porcelain body. Place thick porcelain paste around tube and lay veneer in its place; then carefully draw the whole from position, and lay it on some absorbing material till the excess of moisture is withdrawn. Put this in the furnace and gradually heat till biscuited. To complete the crown, place it in position and thoroughly burnish the gum line; then trim off excess of platinum and add body wherever required. After finishing, it is optional whether the platinum is left remaining or not, but the front portion is generally removed for fear of showing metal line. Veneers are generally used in making this crown, as no pins are really needed, though when desired a plate tooth can be used by soldering pins to tube and insuring position, but in this way investing would be necessary and would take more time. In baking the first time, the crown must be heated very carefully or the veneer will jump off. This is the only objection, for there being no pins there is no danger of checking.

This crown is easily and quickly made, and has the advantage of a perfect fit, and in the front of the mouth gives excellent service. When there is liability to root trouble the use of a hollow post is recommended, which should extend to cutting surface, with opening sealed with gutta-percha or something easily removed. If the crown breaks or splits from the post, this is easily and quickly repaired without interfering with the foundation. If the whole crown, including post, becomes loose, it is then treated as an ordinary pin crown and cemented in position.

In the use of bicuspid or molars I would suggest amalgam attachment, which is made by burning gold to the surface of attachment. The gold is that which is used for china decorating purposes, and is applied with small brushes, and then allowed to dry, presenting a brown appearance, then the tooth or whatever is

coated is gradually heated till it shows a dull gold surface. To make an attachment cover the surface with very thin amalgam and burnish till the two metals unite, and then press the crown or filling into position and draw excess of mercury by wafering, using this method for porcelain fillings is sometimes very advantageous, making a non-leakable and almost indestructible piece of work. By cutting out the line of amalgam sufficiently to retain gold it will make a beautiful operation and overcome the objection to the possible dissolving of cement.

It is also by this means that a very fair imitation of gold filling is made on porcelain teeth, instead of the usual way of drilling a cavity with diamond points and filling with gold. That portion of tooth or block to be gilded is first touched with a corundum wheel, grinding off the glazed surface just the size required. The gold solution is thinned with spirits of turpentine and applied with a well-pointed pencil brush and allowed to harden, then heated till the metal shows itself. Too much heat will run the gold into small globules and render another coating necessary. After the gilding is made burnish the surface with an agate or steel point, which will make a bright and very good imitation filling, taking only a few minutes to accomplish, providing you have the necessary conveniences.

It is not particularly necessary to have a furnace for this work, as it only requires an ordinary blow-pipe heat. First protect the tooth from the flame by covering it with a little box or thimble made of plate platinum, leaving one end open to allow of seeing progress of work.

The "jacket crown" is highly recommended as having many advantages. It has the combined qualities of many of our most reliable crowns, and yet retains its distinctiveness and originality. It can be used on any tooth in the mouth without destroying the pulp, allowing easy access and easily repaired if broken. It gives the strength and qualities of a gold cap without its conspicuousness. I have used it very successfully on split roots or where a canal has been reamed too large, and became useless for retention of pin crown; also where unnatural spaces exist between front teeth. It is equally serviceable where the tooth crown has been cut or broken off flush with gum, by sinking screw posts and building up with amalgam the same as for the tube crowns, already described, excepting that the amalgam is built to point of post, making a sort of "dummy" tooth over which this crown is cemented. This has wonderful strength and natural appearance, as the following cuts of practical and difficult work will show.*

* For illustrations, see following issues of ITEMS.

This crown is made by fitting a platinum band (gage No. 30) to the root or prepared tooth, the same as with gold cap work, excepting that the joint must be overlapping instead of butting edges. The lingual and labial outlines of the adjacent teeth are marked on the tube as a guide to grind those portions away to gain shape instead of cutting with scissors. The lingual side is shaped with wheel on lathe, and a piece of the same gage platinum soldered to fit that portion by very small amount of pure gold. After trimming and fitting to root, the labial surface is ground thin enough to burnish and fit over the tooth, after which a thin veneer is fitted and held in position by the porcelain paste, carefully dried and baked the same as other crowns already mentioned. The crown is now fitted to the root and requirements noted, such as proper size, shape and thickness, and just where body is wanted. If the surface of veneer requires grinding it should be done at this stage, so that it will be glossed again by the last heat, which should be strong and of uniform degree. After final baking the platinum portion is polished and the crown is ready for adjusting, using thin cement and very gentle tapping with a pine stick. The crown should fit easy as there is danger of breaking the thin porcelain on the sides of the crown, or even checking the veneer itself.

The joints are lapped and made as close as possible, so that great and frequent heating will not entirely destroy the solder; excess of solder will flow over the surface of the platinum, causing porosity and destroy the porcelain adhesion, which may not be noticed at the time of operation, but will be more forcibly noted later on. The lingual surface is ground thin to give shape, so that there may be two flat surfaces to hold solder. When finished it gives the proper tooth contour.

ADULTERATED DRUGS.—In a report of the Board of Health of the State of New York for 1893, reference is made to the varying quality of drugs purchased promiscuously in the open market. Out of two hundred and twenty-two samples of creasote, so-called, one hundred and nineteen were real creasote of good quality, one was fair, and the remainder chiefly of carbolic acid. How important then is it that when decided distinction is made relative to the therapeutic possibilities of the two products that the true article only be purchased and used. Merck's creasote is, doubtless, a reliable article. From the same report it is shown that aromatic sulfuric acid varied in percentage of absolute acid from 1.30 per cent to 25 per cent. Dilute sulfuric acid varied from 2.80 per cent to 29.90 per cent, and tinct. iodine, from 1.20 per cent to 12.40 per cent of pure iodine. *Dr. W. S. Elliott, Port Jervis, N. Y.*

SOUTHERN DENTAL ASSOCIATION.

Reported by Mrs. J. M. Walker.

[CONTINUED FROM PAGE 14.]

HYGEIA HOTEL, OLD POINT COMFORT, VA.,

August 2d to 6th, 1894.

Dr. H. B. Noble, Chairman Committee on Voluntary Essays, read the following paper by Dr. L. G. Noel, Nashville, Tennessee: (See December, 1894, ITEMS, page 708.)

The President, at this point, announced the committee appointed under Dr. Marshall's resolution (on "Mooted Questions in Dental Practice.")

Dr. John S. Marshall, Chicago; Dr. H. B. Noble, Washington City; Dr. R. R. Freeman, Nashville, Tennessee.

Dr. H. E. Belden, New Orleans, Louisiana, read the following paper.

ARTICULATORS.

H. E. Belden, M.D., D.D.S., New Orleans, La.

In presenting this paper I do not intend to give an exhaustive account of the subject, but will speak briefly of a few articulators that lay claim to having special advantages.

An articulator is a mechanical device to hold the plaster casts, in order to maintain the exact relations existing between the upper and lower jaws, thereby simulating the patient's mouth, and thus enabling the dentist to work out the case comprehensively.

Its underlying principle should consist in its possessing a certain number of motions, similar, but more than is found in the human jaw.

It is all essential that a perfect articulator should be capable of the following motions: from right to left; forward; backward and extending upward; and also have a hinge-like motion, so the plates can be opened and shut. These motions must be regulated by a retaining device.

Probably the first attempt at a mechanical contrivance was made by Dr. Thomas Evans, of Paris.

The most accessible form is the plaster form, which can be made at the same time the impression is poured; but its great defect is its lack of adjustment.

Dr. Genese has an articulator that is capable of very fine adjustment and of delicate mathematical alterations.

Dr. J. B. McPhason patented, in 1879, an articulator which has a clamping device for holding the plaster model.

The Plain Line articulator has apparently the best sale, notwithstanding the fact that it offers fewer advantages than any of the others previously mentioned. Its low price seems to have recommended it to the general public.

To meet the demands of crown- and bridge-work, there have been several smaller and simpler articulators placed on the market.

There is an articulator, patented May 19th, 1868, which has a backward, forward, and lateral motion corresponding with the movements of the jaw; a motion similar to the famous anatomical articulator of Dr. Bonwill. This

gentleman has written more on articulators and occlusion and angles of the teeth, and has given these subjects more thought, than probably any other of the profession. Unfortunately, there has been a disposition shown to treat indifferently prosthetic dentistry. Look over the dental literature of the day, you will be surprised by the almost total absence of articles on plate-work. One of the contributors to the *Dental Cosmos* has drawn comparison between the many instruments made for manipulating gold and the few for packing amalgam. How much more striking is the deficiency in number of articulators invented?

The greater number of articles on prosthetics is bridge-work. A few years ago I heard a bridge-worker remark that the days of plates were numbered. Yes, they are numbered, but the number is like the grains of sand on the sea-shore.

Of course, if one could invent something to do away with the necessity for plates, it would be a great boon to the suffering mortal, but this is among the impossibilities; plates will continue to be worn as long as man exists, and if it be true what some writers say, there will be more of them worn in the future than now, for they would have us believe that our teeth are more perishable than those of our forefathers, so there will be more edentulous beings, and, therefore, more plates needed with each succeeding generation; so the usefulness of the articulator will keep pace with the ravages of time.

When we see a woman old and toothless, with sunken cheeks and shrunk jaw, restored by the use of plates to apparent youth and comeliness, and, consider not only her appearance, but the comfort she enjoys, and the benefit to her health arising from the power to masticate her food properly, we should not regard prosthetic dentistry lightly. Dr. James Garretson tells us in his very fine work on oral surgery, of a famous mechanical dentist, who furnishes in his own person a striking example of what prosthetic dentistry can do. For, without teeth, or plumpers, he is metamorphosed from an apparently vigorous man, not over fifty, to an old and decrepit one of ninety.

I am diverging from my text, and have allowed myself to dwell too long on what is to me an all absorbing topic—the great advantage of plates, and how much the public are indebted to the dentist for restoring their lost masticating members.

I intended to simply give a description of my device, and call attention to the defects common to articulators that have only a hinge motion, and as well to speak of the benefit it would be to have an articulator that when sets were made they would not have to be disfigured by alteration in articulation, by grinding the teeth to obtain a correct occlusion. "True articulation is, that no tooth is to touch before its fellow."

It is very difficult to obtain a correct occlusion on an articulator that holds the heel of the plate stationary, and the outer rim describing the greater arc of a circle.

An important feature of an articulator is to correct the defects of the bite, and probably those errors most frequently occurring—the holding a part of the jaw by the bite wax, in full cases; the too tightly closing of the jaws, and the protruding of the chin; when the jaw is extended the condyles slip down in the glenoid cavity, and in consequence the posterior teeth are held a part. You can prove this by experimenting personally in your own mouth. With this class of bites a correct articulation cannot be

obtained with an articulator that describes the arc of a circle. When you shorten or lengthen the bite with the set-screw, you will find that the anterior teeth are shortened or lengthened in greater proportion than the posterior ones. Therefore a set of teeth made in this way, when put in the mouth will have the molars touch or stand apart in the same proportion that the bite was lengthened or shortened, and the teeth will have to be ground to obtain a correct occlusion. I do not mean to say that this cannot be avoided, and an absolutely correct bite not taken; only that a hurried, busy operator can hardly give the time to these details, and especially when the impression and bite are given to his assistant, or mechanical dentist, with which to work up the case, who has not even had the advantage of seeing the patient.

These facts being recognized, a contrivance must be made to meet the requirements; and this little device, which I present for your consideration, will, I hope, meet all the demands.

In this articulator the bite can be lengthened or shortened, keeping the plates parallel and not forming the arc of a circle. It is capable of being extended further between plates than other articulators, which is a great convenience in full cases, or the wings can be brought in close apposition for single cases. The upper plate, as in most articulators, can be slipped back and forth to accommodate itself to the individual requirements of each and every jaw. The bite can be moved from one side to the other, to correct the patient's biting toward the right or left. It also has a hinge-like motion, common to most articulators, which is a great convenience in trying the occlusion of each tooth as it is placed on the wax plate. It allows a complete view of the palatine portion of the plate, while the plates are closed, this being quite an advantage, rendering it possible to see if the inside cusps of the teeth touch in articulating, thereby preventing tilting or rocking or fracturing the plate. It has no small screws or parts to be lost in the débris of the laboratory, and is made light and compact, and ought to commend itself as a true, reliable articulator.

Dr. J. Y. Crawford announced the list of clinics for Friday morning.

A clinic on "Immediate Implantation" by Dr. W. Irving Thayer, Williamsburg, Mass., being announced, a heated discussion followed on allowing a clinic by a man who manufactures, advertises, sells and uses a secret preparation for painless dentistry.

Dr. H. J. McKellops said that the Southern Dental Association should not endorse a patent nostrum by allowing its proprietor to use it in a clinic, unless he proposed to demonstrate of what it was composed and to give the formula to the profession.

This was discussed by Drs. McKellops, Crawford, Morgan, Peabody, Noble, Sill, Cowardin, Freeman, Beach, Thayer and others. Dr. Thayer offered to name the ingredients of his local anesthetic, but declined to give the method of its preparation. This not being satisfactory to the Association, the question was settled before being put to vote by Dr. Thayer's withdrawal of both the clinic and the accompanying paper.

Friday was occupied by clinics.

Dr. H. D. Boyd (Troy, Ala.) exhibited a simple regulating appliance, consisting of a vulcanite plate with bits of soft rubber tied to the plate in the positions necessary to bear against the teeth to be moved. The piece exhibited had been used in a case of expansion, there being no space for the permanent cuspids, the cuspids having erupted above the gum line with the first bicuspid and lateral in contact on both sides of the mouth. The fixture was at first ligated to four teeth, two on each side, and later on to the cuspids, which in less than three weeks took their proper positions in the spaces made for them. A similar appliance was then used for the lower jaw to secure proper occlusion. In this simple appliance there are no jackscrews, no posts, and nothing rough to irritate the tissues of the mouth.

Dr. J. D. Patterson, President of the American Dental Association, was, at this point, introduced to the Southern Dental Association. He expressed his regrets at not having been able to meet with the Southern since the joint meeting at Louisville, Ky. He said that nothing would afford him more pleasure, were such a thing possible, than to attend all the dental association meetings in the world, but that this would keep a man traveling from one end of the year to the other. He rejoiced in being present on this occasion, and hoped all the members of the Southern would remain and attend the meeting of the American, many members of which he recognized among those present.

Dr. I. N. Carr (Tarboro, N. C.) then read the follows paper:

DENTAL EDUCATION.

Dental education, in its relation to ourselves and to the general public, is of vast importance. It is being fast recognized that as a preliminary to any special branch of scientific learning or skilled industry we should have a good college education. It is a feature of this active, scientific and progressive age that well-trained, industrious young people, whether men or women, are in constant demand, and the best schools, especially technical schools, are being taxed to the utmost to supply the demand. Excellence is the warrant of success, and the superficial dawdler is out of place. There was a time when he could sleep in the shade and loiter in green fields, but now the great industrial army of the unemployed must "keep off the grass." The world is busy, and, in common parlance, it is "hard up," and people must work in some honest, practical way. Education is intended to secure this result, and we therefore look to our schools and colleges to prepare young men in such a way that they will be fully prepared to enter any of the professions.

But the dental student must have, in addition to his college training, mechanical ingenuity and skill, and the more the better, for without these he will never succeed as a dentist, and even a genius will find difficulties calling for the exercise of his best-trained energies; problems that will tax

his highest faculties, and always the social need for all his varied and substantial accomplishments.

There is crowding in all the professions, and in all the more lucrative pursuits, but the crowding is all on the lower levels, higher up there is always room; for the unskilled and unlearned cannot get there. Hereafter matriculates to our dental colleges must submit to a thorough examination in English grammar, arithmetic, modern history and English composition, or present a diploma or certificate from a reputable literary institution. In New York State, after a very full discussion at the University Convocation of 1893, to which all interested in professional schools had been specially invited, it was unanimously resolved that every degree-conferring institution in the State should be governed by the rules adopted by the Regents; that their academic diploma, or its equivalent, should be required as a minimum of preliminary education of every candidate for any degree which such institution may confer. All college faculties who are members of the Association of Dental Faculties maintain and support just such a standard, and it is to my mind the most advanced step for the improvement and advancement of our profession. You cannot build a substantial structure on a poor foundation.

The day is fast passing away when our specialty shall be considered divorced from medicine. We will be recognized as educated, scientific, medical men practicing a special branch of that noble science. While this cannot be said of most of us who are now in practice, the dentists of the future, if I read the times aright, will be educated medical men. The standard is growing higher and higher, and the facilities becoming greater for its attainment. In my own State the University of North Carolina, recognizing the failure of medical colleges generally to furnish thorough instruction in those subjects which constitute the foundation of medical science, and which are therefore necessary to the intelligent practice of medicine, have opened a preparatory school, and only after the conviction that such a school could accomplish much good was the medical department of the University of North Carolina founded.

If the dental student be first well grounded in the elements of medicine, he will be in a position to enjoy the clinical advantages which the diploma-granting colleges possess. Our best dental colleges have every facility for instruction in the advanced branches, but the very numbers in attendance on these colleges present an obstacle to the correct teaching of the fundamental branches which is seldom overcome; for example, it is impossible to properly teach anatomy to a class numbering two hundred, for only those occupying the front seats of the amphitheatre are near enough to see what the lecturer is demonstrating, and if they would learn in the dissecting halls they must do so practically unaided. We can therefore understand why it is that of the candidates who come before the North Carolina Board of Medical Examiners for license, only about 33 per cent pass its comparatively easy examinations on anatomy, and I believe this is very nearly true of those who go before our Dental Boards. On the other hand, the practice of reading and working a year or two under a dentist before attending a dental college is a custom honored only by time. The absence of dissecting material and other facilities for practical work, the impossibility of regular instruction by a busy practitioner, and the fact that he is often unavoidably "rusty" on just these elementary branches, all conspire to render the year of reading little better than useless, while a year of attendance on a good preparatory

school, that he may be well grounded in the elements of medicine, would be of incalculable benefit to the student of dentistry.

But with all the learning and varied acquirements of which a young man may be possessed, unless he has character, his education is of little value. Our highest obligation, therefore, should be to perfect, as far as possible, our own character, and to make it the medium of a pure, hallowed, transforming influence on other minds. It is in character, as exhibited in a genuine Christian manhood, that our real greatness lies. Men read it as they read no written volume; men listen to it as they listen to no other eloquence; men admire it as they admire nothing else, and by admiration grow into its excellence and become like it. A man's education is incomplete without it; his best energies are wasted; his life a failure. Nothing so enhances his worth in any vocation in life, and we would be untrue to ourselves and unjust to our young men did we not impress this important truth on them. They should ever keep in view the connection between the intellect and the moral nature. Knowledge must become wisdom by its growth and culture and fruitage in the life. In all mental action we should put as much as possible, of ourselves. We are always the nobler and the better in proportion as thought and language express the force of our nature.

To continually improve, both in business and social life, should be our aim, and as a means to the first we should read and digest the best literature of our profession, and to the latter the best books of our best writers. Books are the best gifts of former generations. Through them the past ministers to us with even more wisdom and devotion than it served its own day; they create a social world of their own, and afford us the most genial fellowship that intellect can enjoy. The satisfaction of companionship is found in them. If not adapted to our mind, we dismiss them; for we have no character to sustain in their presence. Dignity does not awe; contrast does not humiliate us. Books feed the mind. By them we grow into larger stature. They add the senses of others to our own, and we gain a clearer sight, a keener touch, an acuter hearing. Our life is multiplied by them. They are the open highways of thought along which we are borne on distant journeys, to realms more gorgeous than the East, more fertile than the tropics. They have a more subtle, penetrating power into our character, comprehend our wants more fully, and respond to our aspirations more kindly and heartily than even our warmest and truest friends. With them we are souls, our disguises are thrown off, vanity ceases its masquerade, pretension endures rebuke, and is patiently silent beneath the probe of reality. And what a vast service they render by interpreting our thoughts, by bringing out into open and illuminated spaces, our dim conceptions, by perfecting our half-formed ideas, by assuring our hesitancy and relieving our doubts.

But while much importance should be attached to books in the formation and perfecting of character, we should not read simply for information; that is the least advantage of reading. If you are simply a well-informed man, you will never have much pleasure or power in the exercise of your intellect, nor will society have much use for you. Read that you may get something more than reading. Be a reader that you may step higher and be a thinker. A true education begins where acquirement ends, and at the precise point where our favorite authors terminate their offices within us, the growth of our genuine manhood begins. There is no station

in life where a man has greater opportunities, or a greater need for cultivating the nobler qualities of his nature; of educating the mind, enlarging its views, training its faculties and elevating his spirit, than that occupied by the cultured, cultivated, gentleman dentist. The acquirement of good manners; the practice of genuine, unaffected politeness to all with whom you come in contact; the kind and gentle, yet firm, manner with which you should treat all your patients, is a task of no small moment. How many efforts have to be made; how many humiliations to be endured; how many defeats borne, ere we learn to practice all these in our every-day life? They are of inestimable value to the young man just starting out on his professional career. It is a type of intellect that is always recognized. In any company it defines itself at once, by its perfect harmony with surrounding circumstances; by the self-possessed ease with which it takes your level, and abates none of its charming dignity. * * * * *

By precept and example let us who are older, show to our young men by our own lives, the reality of what we preach.

Now a few remarks as to our duty to the general public, and I have done. In the first place, we should let them know what to expect of us as dentists, and then educate them in the care of their own and their children's teeth. As a means to this end there seems to be no better way than short comprehensive articles, written in such plain language that the laity can understand them, and so interesting that they will read them. Perhaps a better plan would be as suggested in a paper, which I had the honor of presenting before the North Carolina Dental Society, at its last session; for each State Society to issue a pamphlet to mothers, describing and picturing the eruption of the deciduous and permanent teeth, and how to care for them, etc., and send out such pamphlet under the auspices of the State Dental or Southern Dental Association. This could be done by creating a publishing fund for the purpose. The name of no dentist need appear in connection with them, for if there is anything that the truly professional man does abhor, it is anything that partakes of the nature of advertising. It seems to me that this Association could not better employ a portion of its time during this session than in discussing ways and means for the education of the laity in the care and preservation of their teeth. With these thoughts and my sincere congratulations on what the different State Dental Societies have done in the direction of elevating the standard of our beloved profession, and in what they have done to induce the colleges to recognize the necessity for a higher standard and longer term of studentship, I bid you God speed in your noble undertaking.

Before the discussion of this paper, Drs. J. L. Wolf, Washington, D. C.; J. M. Buattlebaune, Columbia, N. C.; B. B. Smith, Gainesville, Fla.; and T. B. Welch, Vineland, N. J., were elected to active membership in the Association.

Dr. J. H. Crawford, an old member, applied for reinstatement, which was granted on payment of two years' dues.

Dr. H. B. Noble (Washington, D. C.), next read a paper entitled "Education and Legislation."

(See December, 1894, ITEMS, page 717.)

[TO BE CONTINUED.]

AMERICAN DENTAL ASSOCIATION.

Reported by Mrs. J. M. Walker.

[CONTINUED FROM PAGE 24.]

HYGEIA HOTEL, OLD POINT COMFORT, VA.,

August 2d to 6th, 1894.

DENTAL EDUCATION, LITERATURE AND NOMENCLATURE. SECTION D.D.

Dr. Louis Ottofy (Chicago), Chairman, read the report from this Section, covering the period elapsed since the last meeting of the Association in 1892, of which we give a brief abstract. At that time the number of dental colleges was thirty-nine. Since then it has been augmented to forty-six, and reduced to forty-four by the discontinuance of two. Two thousand eight hundred students have matriculated, of whom two thousand six hundred were in attendance, six hundred having graduated and received the dental degree. The condition of the dental schools are more favorable now than ever before. The National Association of Dental Faculties has been the source of marked development and advancement in the line of dental education.

All of the schools have not the best equipments nor the best teachers, but all feel that they cannot attain prominence nor maintain their standing, unless they conform to the rules of the Association of Faculties. Improvements and reforms are constantly being introduced, tending to elevate professional standing. There is a tendency to increase the number of dental colleges, and especially, dental departments of medical schools. This is very inexpensive and harmless to the medical schools, entailing only the addition of three or four dentists to the faculty, and giving up a room or two for operative and technical teaching, and the thing is done. It adds to the revenue of the medical college; but it does not add lustre to the dental profession. If we continue adding this vermiform appendage, we shall foster a dangerous disease!

A radical change in the conditions of admission is demanded. Each school is now the judge of the fitness of the candidate, but this is a faulty method. The lowest requirement should be the degree of Bachelor of Arts, or its equivalent, obtained from some reputable university. Secondly, the school year should be extended to nine months, and the time to four years. It is time we should take notice of the action of foreign countries toward graduates of American dental colleges. As they are now excluded by many governments, it is eminently proper we should restrict the privileges of foreign students, and demand at least that they should acquire our language. The credentials of all foreign

students should be scrutinized with the utmost caution, and passed on by men familiar with the methods of the institutions issuing their credentials.

Dental education was exhaustively treated at the Columbian Congress, and at the Twenty-first International Medical Congress in Rome, and many points were raised which merit investigation. The large number of students in some of the colleges necessitates dividing the classes into sections and sub-sections, and it is impossible to do justice to each and every student. Either the classes should be limited, or their facilities should be enlarged. A student may well question whether it was right to admit him where there was not sufficient clinical material. Changing schools is a great disadvantage to the student, as schedules are not uniform, and some points may be missed altogether.

As to the question of allowing undergraduates to practice, it is an evil which it is difficult to control, and one which is not within the powers of the colleges; but the schools should exert a wholesome influence in this direction. The colleges should demand that the student sign the code of ethics, and this should be done before matriculation.

2d. The student should agree that from the day of his matriculation to the day of graduation he will be governed by the code of ethics; that he will obey the dental law of his State; that he will not engage in any lawful practice, and that any violation of this agreement will entitle the college to remove his name from its records, and to so notify other colleges.

3d. The diploma should be held only during good behavior, the college having the right to cancel it for unethical conduct. If such a contract as this was required to be signed in due legal form, it would draw a much better element to the colleges and exert a wholesome influence on the dental fabric.

The organization of the "technique" teachers is a very important step. The system of post-graduate courses is very beneficial, both to established practitioners who have not attended a dental college, and in improving graduates in special branches. The subject of popular education is important. There is an imperative demand for this, but this instruction should be parceled out in small doses, by means of slips adapted to the case in hand, giving just the information needed at that time, but not trying to cover all the ground at once. This might be accomplished by series of slips to be given out at successive appointments. The papers from this Section were then announced, and the report opened to discussion.

Dr. Frank Abbott (New York) thought that reform in dental

education needed to begin at the other end—more thorough preparation for admission than increased time for special study. In old times men got to be dentists without colleges and without textbooks, but those times are past, and men now need to be thoroughly prepared to receive a professional education.

Dr. S. George Elliot thinks the English dentist ahead of the American in education *per se*, but the American is far ahead in technical skill. More attention is needed for preliminary education.

Dr. W. H. Morgan: The success of the practical dental surgeon depends on tactical skill; you may give him all the collateral sciences, but he will not be a competent dentist; he will not be qualified to practice dentistry without tactical skill.

Dr. Abbott: The fact of a thorough education does not preclude the possession of practical skill, the better education a man has the better professional man he will make.

Dr. Bogue (New York): In Austria, a man has to complete a seven years' course in medicine before he can begin dentistry, and for that reason Austria has but few practical dentists. A man should be acquiring technical skill while he is getting his education. In Italy, no man can study medicine till he has graduated in literature, and he cannot study dentistry till he has graduated in medicine. He must have his A. B. before he can get the M. D., and the M. D. before the D. D. S. In the old countries time does not count, but here a moment lost is lost forever. Here a man begins his professional studies at eighteen, and in three years he expects to be able to do something; he cannot wait till he is thirty or forty years old before he begins to serve his fellow-men. At the age of twenty-one, twenty-two or twenty-three, he must be able to earn his own living, and to render good service in his chosen calling.

Dr. Crouse thought the undergraduate should be permitted to practice that he might learn as soon as possible whether he is fitted for the business, and not be allowed to go on losing time in trying to acquire something for which he will never be fitted. The college faculties soon find out that a man will never make a dentist, and he should not be allowed to take more than one year to find it out, then let him go and try something else.

Dr. J. Taft: It might, perhaps, do no harm to the student, for a first-year student, to begin practice, but what about his patients? Before completing the curriculum he is deficient in some respects, and especially when a graded course is employed. He ought to be as thoroughly equipped as possible before he is permitted to operate at all. He has sufficient opportunity for this in every well-regulated college where he does his work under proper supervision and direction; but when the undergraduate undertakes to practice

alone, the circumstances are different, and it is wrong to encourage that.

He may go out and attain some degree of success—some people are easily satisfied—and so he will spend the rest of his life; perhaps making a little money, but never attaining to anything higher. The influence of such a man is prejudicial to the profession.

Dr. Morgan: I accept much of what has been said; the broader and more thorough a man is in all things, the better qualified he is to serve those under his charge; but, after all, manipulative skill is the keystone in the arch of the dental profession; a man cannot be a dentist without it. I do not know what is understood by "thoroughly qualified;" but a man will never practice at all if he waits to first know it all.

Dr. Truman: The question arises, when shall the line be drawn as to this preliminary education? I do not place myself in categorical opposition to a high standard of preliminary education; there is a medium between the methods of this country and those of Europe. Where too many years are given to theoretical studies there will be a deficiency in practical matters. When shall the line be drawn? When shall we begin the technical teachings? We don't want the European standard. A man does not require a classical education to enable him to profit by the teachings in a professional school. A man may be thoroughly prepared for this in our common schools.

Dr. Abbott: My impression is that Dr. Morgan knows what he is talking about. A dentist, if not practically competent is good for nothing as a dentist. What is a minister if he cannot preach? A lawyer if he cannot make a speech? And it is the same with us; practical ability is what is demanded.

Dr. Bogue: Why has the American more practical skill? It is because of the genius of a republican government. Every man is as good as the next, if not a little better. It is not so in Europe; there a man who labors with his hands is considered to be degraded by it. My old preceptor taught us from the beginning to use our fingers, and to this day I honor his memory. I am thankful that he insisted on careful every-day work. Work and intellectual training go hand-in-hand in making the dentist the peer of any other professional man.

Dr. Taft: Dr. Truman said he would draw the line at the point of having sufficient education to enable him to comprehend his professional studies. But is that the only thing required in preliminary education? A man belonging to a profession should occupy a respectable position in the intellectual world. More than

half the men practicing dentistry ten years ago were deficient in a knowledge of their native tongue. I have been in a position to know that they could not present a respectable page; they were not able to construct a simple letter of a dozen lines. A reasonable degree of culture in this respect is easily attained before the age at which it is advisable to begin technical studies; and this should be acquired. Because a few men did not have these advantages is no reason they should load down the whole profession. I do not refer now to Latin and Greek, and the higher mathematics, though the few men who have had such an education stand head and shoulders above the less favored.

Dr. John S. Marshall asked who are the men who write our textbooks? They are the men who have been through college, who have graduated in medicine and have then studied dentistry. A man who would stand high for ability and professional attainments must have a liberal education. It has been said here that more attention should be given to practical matters and less to theory in our colleges; but the college is the only place to acquire theory. If a man has not studied theory in college he will not study it after he gets out.

Dr. Kulp: I have always advocated a higher order of education as a preliminary step to professional education. We do not want manipulative skill without education, and we do not want all theory without manipulative skill.

Dr. T. T. Moore: At least one-third of the men turned out by our colleges are not competent to practice dentistry. It is not the fault of the colleges. While there are so many colleges, there are not enough first-class students to go round. Our colleges should be endowed, and our professors paid salaries. Then they would not have that interest in the number of students, but could dismiss those who prove incompetent. It is not right to keep a man at it three years when the first year proves him unfit for it—dismiss him, and let him try something else.

Dr. Catching (Atlanta), spoke of the negro in dentistry, the graduates from the college for colored youths in Nashville. When they come before the Examining Boards they are found to be well up in theory; they give in fine written papers; in oral examinations they are fluent and correct; they make a high mark in literary education; but they are defective in manipulative ability, and it will take generations to bring them up to the standpoint of the white man in manipulative ability. Dr. Catching thinks the present high social standing of the dentist due our education now required by our colleges. They have also advanced in moral and social character.

NOMENCLATURE.

Dr. S. H. Guilford, Secretary of Section II, read a report on this subject, which, he said, had never received the attention which its importance merits. While we claim to be a science we lack the most essential requisite—exactness of expression. Words are used interchangeably which vary greatly in shades of meaning, and others are used which fail to convey the meaning intended. This is not so in the other sciences. In mathematics, chemistry, anatomy, engineering, navigation; each part, factor, manipulation or act has its appropriate designation; otherwise disastrous confusion would result. We have overlooked the foundations on which we have been building.

Satisfactory reports have been presented at our meetings, individuals have defined a nomenclature of their own, but each system offered differs from all others, so that our terminology is made more confusing instead of being simplified and systematized by these efforts. The Section recommends that special committees be appointed whose duty it shall be to formulate terminology, accurate and yet simple enough to be readily comprehended. The work would be arduous and long, but the results would be of incalculable value. The Section also recommended that the system of Dental Notation, introduced by Dr. Corydon Palmer some years ago, consisting in the use of the Arabic numerals to designate the permanent teeth, and the Roman figures for the deciduous teeth; combined with horizontal and perpendicular lines to specify the arch and the side of the median line occupied by the tooth, be adopted by the Association.

On motion of Dr. B. Holly Smith a Permanent Committee on Terminology, as recommended by Section II, was appointed as follows:

Drs. S. H. Guilford, L. Ottofy, M. S. Rhein, Thos. Weeks, L. H. Molyneaux, Stubblefield, and A. H. Thompson.

This committee is expected to report progress annually, and to be continued from year to year.

The adoption of the System of Notation, of Dr. Corydon Palmer, was referred to this committee.

Dr. Guilford also read a paper from Dr. M. S. Rhein, entitled:

THE ETIOLOGICAL CLASSIFICATION OF PYORRHEA ALVEOLARIS,

of which a brief synopsis follows.

Various forms of pericemental inflammation, with purulent discharge at the gingival, with the etiology, pathology, and treatment of the disease variously known as Riggs' disease, pyorrhea alveolaris, calcic pericementitis, etc., have engaged our attention

for years, and will continue to furnish a field for battle royal till science shall have vanquished this negligence of the dental organs.

The name pyorrhea alveolaris, though expressing only a single clinical feature of the disease, has been used indiscriminately to express both the most complicated and the most simple forms of the disease.

Dr. Rhein submitted an etiological classification of various phases of the disease, retaining the name pyorrhea alveolaris as generally descriptive of any condition where pus flows from the alveolar borders, but making the two grand divisions of

1. Pyorrhea Simplex.
2. Pyorrhea Complex.

Pyorrhea Simplex includes all cases of purely local origin, curable by local means. Lack of hygienic conditions is at times the sole cause of a purulent discharge. This is purely local and yields to local treatment. In other cases real nutrition, a poverty of the life endowing corpuscles plays an important rôle.

Pyorrhea Complex, by different writers called "true pyorrhea," "phagidemic pericementitis," "hematogenic calcic pericementitis," etc., presenting numerous peculiar and obscure clinical features, Dr. Rhein subdivides into numerous classes:

(a) Cases due to gout, diabetes, chronic rheumatism, Bright's disease, scurvy, chlorosis, anemia, leucorrhea and pregnancy.

(b) Due to acute or infectious diseases, as typhoid fever, tuberculosis, malaria, acute rheumatism, pleurisy, syphilis.

(c) Nervous diseases in spinal diseases, neurasthenia, hysteria.

(d) From the toxic effects of drugs as mercury, lead, iodine.

(e) Pyorrhea sequentia, occurring after the prime cause of disease has been removed.

Compound terms, derived from this classification, such as "gouty pyorrhea," "tuberculous pyorrhea," etc., would be clearly understood as indicating the pathology and treatment of the case in a concise manner without any irrelevant matter.

The report of Section VI. included a review of the recent literature of pyorrhea alveolaris, notably the writings of Professor Peirce, G. V. Black, and J. E. Cravens.

In the discussion of the subject Professor Peirce restated his views in regard to the deposits beginning at or near the apex of the root, and the connection between pyorrhea and the gouty diathesis, and cited a recent case of pyorrhea which was literally cured by the adoption of the dietary and remedial treatment indicated for gout, in connection with local treatment, the latter alone having been tried elsewhere in vain for five years.

He concluded, the anti-gout constitutional treatment in connection with local treatment is successful in so many cases that it is only fair to assume the connection between gout and pyorrhea alveolaris.

Dr. Frank Abbott has not yet seen the conditions described by Dr. Peirce, the deposits beginning at the apex, and does not conceive how this can exist without the formation of an abscess and terrific pain and distress before the outpour, the tissues are so dense and unyielding and at the same time so susceptible to irritation. He thinks there is always some local disturbance at the margins of the gums on the impaction of food, etc., affording a menstruum for the infiltration of lime salts. In regard to the nomenclature he said, what we need is an understanding of principles rather than an accumulation and multiplication of names for the same conditions.

Dr. Crawford believes that the condition known as pyorrhea alveolaris will never occur in any case without "the precedent condition of an issue." Deposits on the root are the sequelae of a sinus. There must have been a wound, an opening, though it may be only a pin-point puncture.

Dr. Rhein: We cannot doubt that the conditions as seen and described by Professor Peirce do exist, and that he has found there, apical deposits without any perceptible break at the gingival border. Because another man has never seen it is no proof that it does not exist. Nothing can account for the varying phases of this disease so well as the varying causes found in the varying constitutional conditions pervading the system at large. The reason why these disturbances manifest themselves about the teeth, especially, is found in the statement of the late Dr. Atkinson, that no tissue in the body so nearly resembles original protoplasm as the mucous membrane about the teeth. It is different from all joint sockets, being soft and vulnerable, and hence extremely susceptible to lack of nourishment, with consequent retrogression to primeval order. Malnutrition is a prime factor in all the complex varieties of pyorrhea alveolaris. The gouty condition is not essential; it is just as liable to be due to neurasthenia, Bright's disease or diabetes. Toning up the system always has a beneficial result.

Dr. John S. Marshall agrees fully with Professor Peirce as to the gouty and rheumatic diathesis, and the uric acid deposits at the apex of the root where the finest steel probe failed to show any break at the gum margin, or any opening till one was made with the vistoury. The gouty dietary and treatment—cutting off all meat and wine and using Lithia or distilled water, the latter

best in some cases, frees the patient from all exacerbations of the disease, while a departure from it brings it back again, is proof that the disease is a manifestation of the uric acid diathesis. There is also another condition of pyorrhea alveolaris connected with uterine troubles and pregnancy, many cases the result of a neurasthenic condition. Dr. Marshall gave an unfailing test for a dead pulp, in the use of the battery with the Farradic current. With the patient holding one pole and the operator the other, the finger of the operator placed on a known dead tooth, nothing is felt; on a live tooth the response is prompt and unmistakable. Placing the finger then on the suspected tooth, the Farradic current denotes positively whether the pulp is alive or dead.

Dr. Crouse related a case in which he was compelled by "a great big fellow" to extract an apparently sound and firm tooth for the relief of extreme suffering. He found on one root a tiny spot of deposit, black as jet, near where the pulp passed in. The four upper molars were all successively removed, and the same condition found. In some cases, where this would appear to be the cause of the trouble, it has got better; either the deposit has been tolerated by nature, or it has, perhaps, been absorbed and carried off.

Dr. Noble, after two years of careful observation, now believes that though it is rare, cases do occur in patients of gouty diathesis, of little deposits of serumal calculus near the end of the root, with an opening at the margin of the gum. Careful observation will lead to the conclusion that Professor Peirce's position is correct.

Dr. Bogue: There are three causes for a roughening at the end of the root; from deposits at the apex, from absorption, or from causes beginning at the gingival margin. Dr. Bogue cited a case in which he had extracted the tooth after treating in vain for six months. He found evidences of absorption of the root with several points as sharp as needles.

Dr. W. H. Morgan, though he has observed very closely for many years, has never seen a case of deposit on the root where he did not find an opening, either along the alveolus or through the root-canal.

Dr. A. W. Harlan does not consider any evidence has been presented to show that the deposits had originated while the patient was suffering from gout or rheumatism; or that there had not been some antecedent injury, allowing ingress of micro-organisms. He asked: Has analysis been made, establishing the difference between deposits on the roots, where there is, and where there is not, a break in the continuity of the gingival margins? Deposits

at the apex do occur, and have been found; but I seriously question if it has been demonstrated that they result from the gouty or rheumatic diathesis. Without the formation of a nidus of some character, under the periosteum or on the cementum itself, accessible to bacteria, such deposits cannot take place. It is impossible to produce suppuration without the presence of micro-organisms. As far as I know, the micro-organisms of gout and rheumatism have not been discovered in connection with the deposits of this disease.

Dr. Taft: The deposits in question do not depend on the conditions described by the last speaker. These salts are held in solution in plasma, perhaps in serum, and are deposited on the root from some change taking place causing precipitation. In view of the great importance attaching to this subject, I move the appointment of a committee, or commission, for the special investigation of this subject, to make a report at the next meeting of the Association. If this is done, and special work devoted to it, we will get at something more definite than is yet known.

Dr. Taft spoke of the non-use of the teeth as a factor in defective nutrition, and its consequences. When one or more teeth are lost, the opposing teeth elongate through a thickening process going on in the socket, which fills up, gradually throwing the tooth out; the change in the membrane being due to lack of normal function. Some teeth will rest for years without this change, but others elongate very rapidly; but those that are most used are most healthy.

Dr. Bogue commended heartily the appointment of such a committee as that suggested by Dr. Taft; and at a later session the Chair appointed Drs. C. N. Peirce, John S. Marshall, E. C. Kirk, M. S. Rhein and J. Taft, as a commission, whose work shall be to make special investigations in the etiology, pathology and treatment of pyorrhea. The committee was authorized to draw on the Treasurer for a sum not to exceed seventy-five dollars, to cover the necessary expenses of their work.

[TO BE CONTINUED.]

"I am no orator, as Brutus is;
But, as you know me all, a plain blunt man,
For I have neither wit, nor words, nor worth,
Action, nor utterance, nor power of speech
To stir men's blood; I only speak right on;
I tell you that which you yourselves do know."

Anthony.

DENTISTRY IN ENGLAND.

Dr. D. W. Henderson, Mankato, Kansas, an English Dentist.

In the December ITEMS OF INTEREST an article is given as to the standing of the dental student and practitioner in England, and it must seem strange to American readers of the ITEMS OF INTEREST that the medical profession should gobble up the struggling student of dentistry, and compel him to stand before that dreadful body and solicit the privilege of practicing dentistry. Why should they monopolize dentistry and make themselves heroes of a business they know nothing about? The American doctor of medicine is satisfied to be master of his own art, and to thoroughly understand every department that he has to engage in, and they therefore stand as the leading lights of the world. America has the most skilful surgeons, best hospitals, and keenest instruments, and they treat dentistry as a distinct profession, and do all in their power to help build us up. The Englishman forgets that a few years ago all he knew about medicine was to bleed, blister, and purge, still a little more ought to be added by saying he knew how to "cup," yes, so did the barber, and thus between the M. D. and the barber in England the sick man had to take his choice. I remember when I undertook to learn the dental profession in England, I was bound apprentice for five years, and was, during that time, a complete slave to the workshop. The first year I did nothing but polish gold plate from morning till night, the second year the same, the third year were added repairs, fourth and fifth year making gold plates; but, remember, in all that time I never heard the doctor mention one word about saving a diseased tooth. We never thought of anything else but extracting. I never saw a continuous gum set till one day a "Yank" brought in a plate to be repaired, then we all wondered what it was. Our hair stood on ends. We finally vulcanized two front teeth on. We expected every moment it would dissolve from view. Now, remember, this was one of the largest establishments in England, and one that employed four men all the year around. We never saw anything of gold fillings unless brought from the United States. Nor did we understand the first principle of that department. Therefore, in my estimation, the best and most difficult dental work has always been done in America, and whatever England has in the way of advanced dentistry she owes it to the intelligent progressive American dentist. Americans realize that time is money, and when they go to college, or the office, they doff their duster and get to work, and grapple with the most difficult task before them, and

in three years they learn more than an English dentist generally does in ten. Our American physicians study night and day. They, too, jump at their work, never quit, never tire, but unceasingly plod. The American is not kept back by old usages and methods, but he cleans up as he goes, and he generally does all things well; hence his superiority. The physician knows he cannot learn to prescribe, make teeth, and compete with the barber. No, sir; he learns his profession, and expects me to know mine. And any "Jack of all trades" in the United States is given the "go by." When an American physician needs dental work he comes to a dentist, and when a dentist needs a physician he knows his place, and calls on the physician, hands his patient over for his able consideration and treatment. How is it with the physician in England? Though he knows nothing of dentistry, he assumes to lord it over him as knowing all the dentist should know of his specialty. He, therefore, stands before the dentist with a law club in his hand, ready to knock him down if he does not gage up to his standard. The fact is, their superiority is only assumed. They have the most influence politically, and they use it to enhance their coffers.

MINERAL CEMENTS.

Prof. S. J. Willey.

For a long while there have been on the market mineral cements, phosphate of zinc, insoluble cements, granite cements, diamond cements, and a great number whose titles would seem to indicate that the substance to be put into the form of a plastic filling is not excelled even by the diamond itself. All of these cements, subjected to the ordinary chemical analysis, disclose the fact that they are made of similar substances, and their real differences consist largely in the method of preparing them.

It is not uncommon for dentists to be informed that oxid of zinc, put into a crucible properly luted, and the whole placed in an ordinary fire and allowed to remain for an hour or two, constitutes a cement of very excellent quality; and that they may purchase at any drug shop dilute phosphoric acid, and the two will make a cement to fill cavities with safety both to the patient and their own reputation. Experiments with these things sometimes meet with tolerable success; but there cannot be by this kitchen method that uniformity of production which emanates from a scientific conception of the uses to which plastic fillings are put. To have uniform results, materials must be prepared scientifically.

The glacial phosphoric acid that is useful for the ordinary purpose of the druggist will not necessarily be useful for the dentist, because the needs of the two are different. What methods are to be employed in the dehydration of aqueous phosphoric acid? The specific gravity and heat intensity belong solely to the functions of him who knows what these things should be, to make a proper chemical combination with his powder. That one may know the degrees of his Baume and of his Fahrenheit, and also the fact that aqueous vapor should be eliminated from the phosphoric acid, when chemical combination has been properly brought about by the insertion of other substances into it, are important; but it is still more important, both scientifically and commercially, to know how this material can be uniformly produced and its integrity maintained.

The methods necessary to produce this liquid in a form which will give the best results do not come within the profitable purview of him who uses this fluid. They are too costly.

A test employed by some manufacturers to determine when the fluid is properly prepared is to affirm that the fluid should be of the consistency of glycerin, as though all glycerin is of the same consistency, regardless of the influence of quality or heat and cold! Just as we can never determine whether a substance is alkaline or acid except by tests by the proper agents, so you cannot tell by sight alone when the fluid is in proper condition; scientific apparatus alone must determine it. In this, as in some other matters, sight fails.

The same criticisms which hold in relation to liquids for cements will hold largely in reference to the powder. Should it be an oxid of zinc? If so, why should not the raw oxid of zinc answer as well? Should it be calcined? Why? Does the principle of dehydration enter here the same as in the fluid; and, if so, what intensity of heat must be employed to produce the dehydration of the powder? Is it less an oxid after calcining than it was before? Does it possess the same hygroscopic qualities before as after? These should concern the manufacturer, and he must, by actual test in manipulation, and integrity both in and out of the mouth, determine what must control him in the preparation of the powder for cements.

While the powder and the fluid have been prepared according to known and scientific rules, there is nothing left then, if these two are chemical substances, but to bring them together under proper conditions, and then we shall have a new compound instead of phosphoric acid or the zinc; we may likely have a zinc phosphate that enters the tooth cavity and performs the functions of which

the dentist very well knows its utility. When these two substances are brought together chemical action is the result, heat is evolved and a new substance formed; therefore the more intimate the fluid and the powder become, the slower will be the setting of the cement, the finer the grain, and the more solid the filling.

Every molecule of the powder should come in contact with every molecule of the fluid. The rules given for mixing are the result of this principle.

The mineral cements The Wilmington Company offer the profession have been prepared according to the lines here laid down. These cements cannot be mixed like a hod-man mixes his mortar, because the chemical combinations will not form in the same way, nor will the proper results be obtained from a physical point of view. Therefore, we have deemed it wise to give the following suggestions to guide the dentist in mixing these mineral cements whose utility and value are becoming more and more apparent as they are used more and more by the profession.

Only a very little practice is required to become an adept in mixing the material, so that the mass will be exactly of that plastic character best suited to the cavity to be filled. A failure in mixing will always result by using an excess of powder. Cleanliness is very important. The glass slab to be used should be thoroughly cleaned, and the spatula smooth and tolerably stiff.

While it is very difficult to formulate any exact set of rules which will meet the requirements of every dentist, because it is difficult to find any two who are governed by the same rules; yet, after a long series of experiments and consultations with the very best operators in the profession, we find that the following rule will be an excellent guide to those who have not yet adopted the methods here suggested:

Pour on a small glass plate enough fluid for your purpose, put beside it enough cement powder for the filling. Draw the powder gradually into the fluid, and with a stiff spatula quickly rub the mixture into the consistency of cream, bearing hard all the while on the spatula, gradually manipulating it without any more powder. When the mass has become sufficiently plastic, apply it to the tooth cavity in the usual manner.

It is necessary to emphasize the fact that no more powder must be added to the mass when it has been worked to the consistency of cream, and that continued manipulations, without the addition of any more powder, will gradually bring it to that degree of plasticity which is essential to a hard, unshrinkable, and bony mass.

UTILIZING AMALGAM WASTE.

Dr. William H. Trueman, Philadelphia.

The only really economical method of utilizing amalgam waste practicable for the average dentist is to reduce it to dental alloy by remelting, and thus expelling the mercury. It can then be cast into an ingot and reduced to filings. Prof. George T. Barker suggested it to me many years ago, and from frequent favorable notices of the process in the dental journals from time to time I presume it has proved to others, as it has to me, generally satisfactory.

If the waste is all of the same make or formula, my experience invariably has been that the product is a little better than the original. If a general mixture of all kinds, I would not advise its use in the mouth till it has been well tested out of the mouth, especially for hardness and shrinkage. If there is the least doubt of its being good it had better be thrown away.

The method is this: Place the waste in a crucible much too large, apply sufficient heat to merely fuse the mass. As the mercury is apt to be expelled somewhat explosively, cover the crucible with a slab of anything non-metallic that will resist a red heat, to prevent its contents being thrown out. When the heat reaches about 700° , the mercury begins to distil off, rising in white fumes. It is very important that these fumes be not breathed, the fire should be so arranged that they are carried off by the draft. After visible fumes cease to be given off, I hold the polished face of a cold hammer over the crucible for a moment; if any mercury is still escaping, its presence is indicated by coating the hammer with minute globules. When the mercury seems to have been completely expelled, add a little borax, increase the heat to a full bright red, and after a few moments pour into the ingot, holding back the dross with an iron rod.

To avoid disappointment, before attempting to refine amalgam waste, a little simple arithmetic may be in order. We may assume, roughly, that dental alloy prepared for amalgamation averages less than half an ounce of pure silver to each ounce of alloy; we may also assume that each ounce of waste is about half mercury. Therefore, one ounce of waste contains about one-fourth ounce of pure silver. This will hold good with most of the alloys now on the market. Gold, the only other metal of value it is likely to contain, would amount to so little in several ounces of waste that the isolation, while interesting as a chemical experiment, would cost far more than its worth. Now, pure silver is worth at the

present time from sixty-five to eighty-five cents an ounce. We may also consider that there is always an actual loss in all refining processes; that this loss is nearly as great in refining one ounce as in refining twenty. Before beginning, we can thus proximate the value of the maximum amount of silver possible to recover. We can easily, by consulting any text-book on chemistry or metallurgy, closely proximate the cost of acids, fuel, etc., required, and decide whether the probable gain will compensate for the time, the injury the acid fumes may cause to the tools in the work-room, the soiled hands, and possible injury to clothing. I have taken, so far, no account of the mercury. By placing the waste in an iron retort, with suitable connections, the mercury can be recovered. I have found it always contaminated, and not in a condition for immediate use for making dental amalgam. I so far have failed, after repeated efforts, to make it usable for that purpose at a less cost than a purchasable article. It complicates matters, and a narrow escape from accident convinced me that the attempt to save it might prove expensive economy.

In the old days—may they never return!—when we had to refine our gold and silver, and the laboratory was properly equipped for such work, and the workman in constant practice, we thought no more of it than running a plaster-cast. The method is simple enough, and may be found in any good work on metallurgy. It is interesting as a laboratory experiment, but as economy, with less than a pound or two of waste to work on, it does not pay. I have done it hundreds of times, and that has been my experience.

DENTISTRY IN ENGLAND.

By an English Dentist.

I crave a space in your journal to further explain the correct meaning of your correspondent's rather misleading and vague article under above heading in your issue for December.

All matters, medical and dental, are under the jurisdiction of the General Medical Council. The educational registration and conduct of all are subject to the Council. It has full disciplinary power, and can remove a name from the respective registers for misdemeanor. The medical qualifications granted in this country are degrees granted by the universities and diplomas by the different examining bodies, or colleges, as they are termed. These latter institutions are independent examining bodies and not connected with any medical school.

The degrees conferred are M.B. and Ch.B. or B.S. (Bachelor of Medicine and Surgery), usually conferred together. Higher degrees, M.D. or Master Surgery, are also conferred after a further examination in some branches. The universities are London, Oxford, Cambridge, Durham, Manchester (Victoria) in England; Edinburgh, Glasgow, Aberdeen, and St. Andrews in Scotland; Trinity College, Dublin, and the Royal in Ireland. London and the Royal are simply examining bodies. Each division of the kingdom has a College of Surgeons and Physicians with the handle "Royal" added to it. The surgeons and physicians colleges are entirely separated from each other, but since 1887 a single diploma, granted only by a single college, is not registrable; so they combine together for purposes of examination and grant a conjoint qualification. They give the title of licentiate of the respective college. The title, the Royal College of Surgeons of London, or England as it is generally called, is member instead of licentiate. Either college would confer its diploma on any successful candidate singly as a secondary qualification. In addition to the Royal Colleges of London, Edinburgh and Dublin we have also the Faculty of Physicians and Surgeons of Glasgow, and two other bodies, called the Apothecaries Hall of London and Dublin. The Faculty grants a license and combines with the Edinburgh College for examination purposes. The Halls are medical—apart from surgical—corporations, and grant also a license, L. S. A. (Society of Apothecaries), London and L. A. H. (Hall), Dublin. The latter combines with the College of Surgeons, of Dublin, for examination purposes, while the former has the power to confer a full registrable qualification, the L. S. A., London, being equal for all purposes to M. R. C. S. and L. R. C. P., London, or to an L. R. C. S. and L. R. C. P., Edinburgh, and L. F. P. S., Glasgow. The College of Physicians grant a higher qualification also of member, and higher still, Fellow of the Blue Ribbon of a Physician, a F. R. C. P., the possessor of the latter qualification not being in a position to legally claim any fee—the Blue Ribbon of a Surgeon being F. R. C. S. These higher qualifications can be bought under given conditions. The three Colleges of Surgeons and the Faculty of Glasgow grant the only dental qualification given in this country, *viz.*: L. D. S. (Licentiate of Dental Surgery). To repeat, these colleges are simply examining bodies; the student of medicine or dentistry takes out his curriculum in any of the numerous schools he pleases.

There are about twelve complete medical schools in London alone, and not one of these have any power to confer any qualification.

There are about eight or nine dental schools in the kingdom, but not one that gives a complete dental education, unless it is Guy's Hospital Medical School, London. There are hundreds of medical practitioners in this country who are only partially qualified. Previous to the year 1887, a single diploma could be registered.

I almost forgot to mention another source of degrees in this enlightened and advanced country. (How far would they be ahead if it was not for Americans with dentistry?)

The honorary degrees conferred by the Archbishop of Canterbury, the head of the State Church (Episcopalian), these are styled Lambeth degrees. He can confer any degree. About half of the theological graduates in the Episcopal Church are Lambeth graduates. The M.D. conferred by him previous to 1858 were registrable. He has conferred a few since then. Episcopalians only have the right to theological degrees at the English universities. Spurgeon, Dr. Parker and others could not possibly get a D.D. in England. Please do not classify the Lambeth degrees with the Buchanan's in your own country. The Lambeth M.D. costs £60. It is very unfair to registered Americans in this country for every English quack to style himself "American Dentist."

Recapitulating the erroneous statements (unintentionally no doubt), I have shown that there are four dental qualifying bodies or colleges and not three, as your correspondent stated, and the Royal University of Ireland is not one of them.

He states also, that there are a score or more complete dental schools; it is a question whether we have one. He also seems mixed up with the "doctor" question. A possessor of a doctor's degree only is legally entitled to be called such in this country. No one dare sign any qualifications that he does not possess, on a death certificate, for instance. M.Ds. in this country are something like the D.Ds. are over there, few and far between.

THE GRIEVANCE OF A STUDENT.—I graduated 1891 class, New York Dental College, and have a desire to study medicine, and find I must review all my old studies, the "English branches," before I can enter as a medical student. Should not a law, or some clause be inserted to make the diploma of a dental college answer as a certificate equal to a regent's certificate. This condition has put me back one year in entering college, and I find I am now as well posted as two-thirds of the first-year men in several colleges. If the thought is worthy of your notice, please let us hear through the ITEMS OF INTEREST.

W. B. Park.

FRACTURES OF THE MAXILLA.

Dr. P. L. Haight, Little Falls, N. Y.

The symptoms are: Crepitus, pain on opening and closing the mouth, swelling and inflammation, inability to masticate, and usually a marked irregularity of the teeth. One of the great difficulties in treating these fractures is the fact that, as a rule, the patient will not come for relief till from one to three days after their accident. They know they have pain, but do not attribute it to a fractured jaw. This is especially so with intoxicated persons, as they usually receive their accident in fighting or from a fall.

Severe fractures of the superior maxilla may occur, and recovery sure. I cite, for instance, the case of Prof. Agnew, of Philadelphia. The patient, a young boy, had been caught between the bumpers of two railroad cars. The whole face had been disjoined, the superior bones badly crushed, and the inferior broken in four places. The upper united; the lower only becoming slightly necrosed, and requiring to be removed. The quick recovery of the superior maxilla was due to the perfect vascularity of the parts.

Fractures of the inferior maxilla may occur at any point, but most frequently near the mental foramen. Should the condyle be fractured it will usually occur at its neck, and this, I think, is the fracture most to be dreaded.

The treatment of these fractures is simple. Bring the parts into perfect apposition, and retain firmly till ossification is complete. This requires from two to four weeks, all greatly depending on the age and condition of the patient. Before taking an impression, it is always well to make a thorough examination for splinters of bone, etc. Should there be any fractured teeth present, or diseased roots, remove them, as their retention might interfere with a perfect union. All exposed pulps or teeth which might possibly ache should be devitalized. The impression should be taken in wax or impression compound. I do not believe in the use of plaster in these cases, for two reasons:

1st. The removal of the impression is painful.

2d. It is too good, for if tin foil is used on the cast, the splint, when vulcanized, will be found to fit the teeth too closely, and too much force will be required to get it in place on the teeth.

It is as well to remove the impression material before it becomes stiff. If it is done carefully and immediately plunged in cold water the impression will be sufficiently perfect.

It was my fortune soon after entering practice to be confronted by a fracture of the inferior maxilla. It was a simple fracture,

nearly involving the mental foramen and extending from the body of the bone up to a point directly between the first and second bicuspid. As it occurred the evening before, the face was very much swollen. I decided to set the fracture without reducing the inflammation and swelling. With the help of an assistant I obtained and maintained the exact articulation of the apposing bones. The articulation was maintained by the aid of a piece of soaked boot leather (four by two and one-half inches) sprinkled with plaster of Paris to avoid slipping. This leather, bent in the form of a V, was held by the assistant, who, at the same time, brought pressure to bear through the length of the bone by placing the fleshy part of the thumb over the symphysis and the second finger over the angle. In this way the bone was supported and held in apposition from three points. I then proceeded to get an impression of the coronal surfaces of the teeth as far forward as the lateral incisor and as far back as the second molar. With very soft wax I took an impression of about half the length of the teeth, allowing this to be the distance between the gum margin and the coronal surface.

A model of this I immediately half-flasked. Then, after building wax on the teeth a trifle thicker than I wished the splint, I whole flasked. The flask being separated and the wax removed, I painted the teeth with chlora-percha. This greatly assisted me in packing the rubber about the teeth. Obtaining the proper amount of rubber I re-flasked, and closed as rapidly as possible. After vulcanizing, the splint was trimmed down as thin as was consistent with strength and perfect rigidity. My splint was then ready to be inserted in the mouth. I commenced by tying well-waxed silk ligatures around the necks of the teeth to be covered by the splint. The splint being pressed over the crowns of the teeth while the broken bone was in perfect articulation. I found that without other aid it had a tendency to hold the broken parts together firmly. To be sure, I took up the ends of the ligature and tied firmly with a double knot. After applying iodoform gauze to the wound on the cheek, and bandaging only tight enough to hold the dressing, I dismissed the patient. Two weeks from that day the splint was removed. The union was perfect.

To obtain the best and quickest results in fractures of the maxillary bones, tight bandages should always be avoided. If it can be avoided, do not bandage at all. The free and untrammelled supply of blood to the injured part is one of the secrets of success. Since this case I have had two others, both of which were treated in essentially the same manner. During my senior year in college, a friend and I were coasting on our wheels in Fairmount Park. In

some way he received a hard tumble, striking his chin and fracturing the inferior maxilla at the symphysis. The line of fracture extended up between the central incisors. He was kind enough to allow me the practice. This case I held with the band and screw appliance, making bands to fit snugly over the cuspids. I then soldered to them small tubes of German silver of half an inch in length. These tubes being placed in exact alignment to the teeth. A piece of wire accurately fitting these tubes was bent at right angles at one end and screw cut at the other end. The bands were cemented to place and allowed to thoroughly harden. The wire was then inserted in place in the tubes, and the fractured ends drawn together by tightening the nut on the screw.

This appliance was worn thirty days with little discomfort. An antiseptic wash such as listerin or peroxid of hydrogen should be used by the patient two or three times a day.

TIN AND ITS COMBINATIONS WITH GOLD AND AMALGAM.

S. B. Palmer, M.D.S., Syracuse, N. Y.

Tin has been used for a long time, and its merits fully recognized. It is soft, easily adapted to the walls of the cavity, is the most compatible with dentine of any of the metals used, is a poor conductor of thermal changes, it oxidizes but slightly, while the oxidation between the filling and walls of the cavity is insoluble, filling the dental tubuli and decalcified dentine and thus arresting further decay. This constitutes the antiseptic properties claimed for tin. But it fails to meet all the conditions for permanency. It is non-cohesive, and when packed in a cavity in layers it will flake.

Some years ago, Dr. Frank French, of Rochester, wrote me, asking for the chemical relations or combinations of tin and gold. I could not answer, nor have I found a solution, till by observation and experiments I have settled on the following as scientific and correct. These three effects are visible:

First. Tin and gold unite in fillings, and there is no separation at the union.

Second. Tin and gold work well together where tin comprises most of the filling, and gold is added as a protection from wear, or for appearance.

Third. When tin is used as a guard filling, under gold, or as a lining, and the tin exceeds in thickness three leaves of foil, a portion of the tin next the dentine will be oxidized and remain a soft black paste, no decay being found so long as the oxid remains, but as it is too soft for the brush, toothpick, etc., it is unreliable.

Thus we have three distinct effects and corresponding conditions. Let us look for the causes. The one great hindrance to progress in dental science has been failure to find the source of each particular effect.

First. The union of tin and gold in the mouth. The two metals must be in contact. The process by which the metals unite is electrolysis. It is a law of electrolysis that no single element can be decomposed; also that fluidity is essential for molecular movements. When, therefore, gold and tin are united or compacted in a filling, the two metals within remain distinct and unchanged. But on the surfaces exposed to moisture, even to that in porous dentine, the tin is oxidized by reason of the current set up by the gold. Thus the tin is dissolved, and by the current, as in the electro-plating bath, the atoms of tin are attached to and fastened on the gold, similar to plating gold with tin. The tin plating thus formed will not exceed the thickness of two leaves of foil.

To make this plain: If mercury is placed on gold or silver it will amalgamate till the mercury is satisfied, and it will go no deeper unless more mercury is added. Mercury is a metal in a state of fusion, while the tin is held in a liquid state. The tin does not penetrate the gold to any great depth, but the gold influences the tin by mutual induction, as zinc affects iron to render it negative. Thus an amount of tin is preserved to the thickness of two folds of tin foil. There can then be no separation of tin and gold, because the tin which is united with the gold is negative to the other portions of the tin. When tin constitutes a portion of the filling, the two metals work well, as the tin is but slightly oxidized, and not dissolved by galvanic action. But when only three or four thicknesses of tin are used, the one or two leaves which will be in excess of the preserving influences of the gold, with no body of tin back of it, are in danger of its losing their integrity as a metal, and becoming dissolved as before mentioned. This difficulty may be obviated by mixing the metals in the foils by alternate layers, forming the leaves into tape blocks, or rolled into cylinders. Thus guard fillings or whole fillings may be made, which have many advantages over amalgam. The alloy thus formed resembles amalgam in color and hardness, does not shrink, and preserves dentine as well as tin alone. Any amount of gold may be used without injury, and the excess which is not taken up in forming the alloy will show the gold bright and clear.

On the other hand, an excess of tin will be marked by lines or pits in the filling showing where tin has been dissolved. It has been mentioned that this chemical action occurs only on the surfaces exposed to moisture. I will add that in building up large

fillings, it is important to have the filling wet when inserted; then the whole plug is as solid as amalgam. The moisture sets up electrochemical action, with the results already stated.*

One more statement in relation to tin and gold, and we will take up the next combination. About thirty-seven years ago I filled the upper incisors for a lady patient who could not afford the money to pay for gold, while I could not afford the reputation to use amalgam. The cavities were proximate, and the enamel on lingual surfaces badly broken away, with the labial surfaces transparent, yet well preserved. The cavities were lined with non-cohesive gold and filled with tin. I saw the fillings several years after. The gold was visible through the enamel and the fillings were perfect, no appearance of recurring decay. This case with others was reported at a society meeting, and probably published. I quote the following from the remarks of Dr. C. S. Stockton, Newark, N. J., at the World's Columbian Dental Congress:

"I recall two fillings that I saw only a short time since, which were put in twenty-three years ago, I think. I filled those teeth by a plan recommended by Dr. Palmer, using mats of Abby's soft foil packed up against the labial surfaces of the enamel, filling the remainder of the cavity with tin foil. They are in as good condition to-day as they were twenty-three years ago."

Now let us study the relations of tin and amalgam. This we cannot do without a knowledge of some of the properties of amalgam not given in the books. A few words will excuse me from lengthy remarks on copper amalgam, which I have used only experimentally. The teachings of nature's simplest text-book, the galvanic battery, would enable any one familiar with electrical science to know that an amalgam composed of two single elements could not be relied on. Copper and mercury are brought together and form a hard mass, still each metal retains its individuality. Heat the mass and the mercury will be partially expelled, the compound becoming plastic, which is not the case with an alloy of two or more metals. The relations of copper and mercury are the same as copper and zinc in a battery, only that there is no great electrical difference or potential between copper and mercury. Like saliva, the positive and negative relations are liable to change. At times the copper becomes the positive element; that is, the fluids may oxidize copper more readily than mercury, when the filling will appear white from excess of mercury on the surface, and the mercury is soon worn away. When the affinity of the matter in

* Since writing the above, I placed a layer of tin foil on a plate of 22k. gold and inclosed it in plaster, with a case, while vulcanizing. The two metals were united, forming an alloy of gold and tin.

the mouth is stronger for mercury, the filling appears brown and spongy, and is too soft to stand abrasion. When the action is equal, or so nearly so that the oxidation on the surface unites to form a black, hard compound, then one metal protects the other, and copper amalgam is pronounced a success.

The setting of ordinary amalgam can be well understood by the process already described in the combination of tin and gold. In amalgamating the filings of the alloy, mercury is absorbed, or enters into the alloy, according to the fineness of the cutting. The excess of mercury is forced out, and the filling inserted. The amalgamation of the mass is by no means completed, but continues till the mercury has been taken up and firmly held in combination. Then it is that the mass has become hard. This process requires more or less time, for two prominent reasons, the age of the alloy, and the thickness of the filings or shavings. Fine filings, when first cut, will set nearly as quick as oxiphosphate.

Let us now consider the condition of an amalgam filling which has gained its maximum degree of hardness. It is not an alloy, as if all the metals were fused by heat. There are two distinct conditions in an amalgam plug. There are the coarser particles, the center of which contains less mercury than the other portions, and there is the bulk of the mass, which is thoroughly amalgamated. In all high grade amalgams, mercury is the positive element, the one to be most acted on. We said that in the combination of tin and gold, where there is an excess of gold, it remains distinct, so that the unamalgamated particles are negative to the portions containing more mercury. But there is also local electric action going on on the surfaces of all amalgam fillings that do not protect themselves by sulphates or oxides of the metals.

Amalgams which will stand the tests for shrinkage perfectly, if filled on soft dentine for a few years, on removal will appear rough, blackened, and show none of the fine lines of adaptation to the dentine that they would have done on removal at first. This is according to a well-known law, which can only be set aside by changing conditions. The cause of shrinkage and failure of amalgams, after many years, is from galvanic action between the unequally amalgamated portions of the plug and the other portions containing more mercury, much the same as between copper and mercury. The rough surface of an old amalgam filling is caused by the dissolving of the mercury by local currents, generated by the potential difference between the positive and negative relations between the metals. This principle is the great cause of failure, and we have, to a considerable extent, corrected the difficulty in the use of copper in the alloy, depending on oxidation to change

the positive relations of the dentine to negative; but when the local action is so vigorous as to produce acid, the lime constituents of the dentine are attacked, and the same results follow as in the use of gold.

Study of a single galvanic battery affords a lesson, and I think a remedy for this difficulty, by which we may use amalgam without copper. The lesson is this: Commercial zinc contains other metals, among which iron is prominent. With pure zinc in given liquids, used in some forms of batteries, there would be no consumption of zinc with an open circuit; but with commercial zinc with an open circuit there is local action, and the zinc is dissolved without contributing to the general current. That is analogous to an amalgam filling. There is local action and consumption, which are often taken for shrinkage, the cavity being also enlarged.

The remedy adopted to prevent local action on zinc is to amalgamate the plate, which neutralizes all local differences, only one metal—mercury—coming to the surface. Reasoning from this fact, and knowing another quite as practical, that tin fillings do not shrink, and that no secondary decay appears, then we can use amalgam free from copper by lining cavities with tin foil. I know that local action is done away with, that shrinkage cannot occur, that dentine will not be dissolved, and I believe by this that we get the combined benefits of tin for tooth preservation, and of amalgam to withstand attrition.

Another aspect of amalgam fillings is when two or more pieces have been joined at different times. After years the line of junction will be found distinct and depressed, and occasionally separation is complete. The cause is this: That portion which acts as solder to unite the pieces contains more mercury than the filling on either side; consequently, it becomes a thin, positive element, between two elements negative to it, with results as stated. The remedy consists in amalgamating the surface of the old amalgam, and covering it with a layer of gold foil, filled on the gold, which at once disappears. Joints thus treated become negative to the fillings proper; consequently, the union is preserved.

In closing, we mention combinations of gold and amalgam. The principles are the same as those already mentioned; therefore, little more need be said to make the application. When gold and amalgam are to be used in the same tooth, by all means unite the two, or there will be a current passing from one to the other through any conductor that reaches, from one to the other. Any sensitive person can realize this by covering with the tip of the tongue the two fillings. When the connection is made by uniting

the fillings, no current will leave the metal to effect the taste or dentine, and the union of gold and amalgam is ever perfect, because the mercury takes up gold enough to make the joint negative to the amalgam, so that if the fillings were placed in dilute nitric acid, after the amalgam should be dissolved, that layer which composed the joint would be found intact with the gold. Amalgam when connected with gold becomes positive, and, consequently, shows oxidation to blackness. This, however, is a benefit, inasmuch as it greatly overcomes local action, which has already been mentioned.

Amalgam is good to use as a guard filling under gold, and particularly in proximate cavities in bicuspid, where the cavity extends up too far to allow the application of the rubber-dam. Amalgam may be used to fill the root portion, and, when set, the dam can be applied, and gold used to complete the filling. On account of the local currents which are present with amalgam, I much prefer tin prepared as before mentioned. There is much more disturbance between two proximate amalgam fillings than between two of gold; therefore, it is better to fill with tin, or tin and gold, at the cervical border, and finish with amalgam, because tin is a poor conductor as compared with gold or amalgam. According to Cassidy, the conductivity of the principal metals are rated thus:

Silver.....	1,000
Copper.....	736
Gold.....	532
Tin.....	145
Iron.....	119
Lead.....	85
Platinum.....	84
Dentine (normal moist).....	15

Amalgam is not given, but from the silver which enters into its composition it would probably be above tin.

If the mouth is in a vigorous state of health, artificial cleansing is less necessary. The souring and decaying of food, etc., on and between the teeth are prevented by the neutralizing secretions from the numerous glands of the mouth. But, with nearly all, the use of a soft tooth-brush and water, at least once a day, and a quill tooth-pick after each meal, are required to keep the teeth clean.

Sometimes a powder made of one part pulverized castile soap and three parts calcined chalk is very useful. Soap is nearly the only thing yet discovered, excepting the healthy secretions of the mouth, which will kill the living animalcules found in the decay of the teeth, and in all accumulations allowed to remain on them.

The Teeth.

CURRENT THOUGHTS.

VULCANIZING RUBBER.

Dr. Geo. B. Snow.

Dr. Geo. B. Snow, of Buffalo, N. Y., presented some samples of vulcanized rubber, and showed what the physical changes are that take place in that material during the process of vulcanization. The samples, both by their change in shape and by their increased specific gravity, showed that their mass was perceptibly smaller after vulcanization, the change differing according to their composition; those composed of pure rubber and sulfur shrinking more than those containing a large percentage of foreign matter; the scale running from pure black to pink, the latter showing the least change. The difference in the specific gravity of the samples showed the change by vulcanization to run from about 6 per cent for pure black rubber to about 3 per cent for pink. Attention was drawn to the fact that the heretofore unaccountable mishaps which occur in vulcanizing, such as loose teeth, vacant spaces under the shoulders of bicuspid and molars, and under section teeth, are easily explained when the shrinkage of the rubber is taken into account; their occurrence being much more frequent in the use of black or pure rubber than the colored ones.

The subject of the expansion of rubber by heat was then taken up, and specimens were exhibited which showed that its expansion from 212 to 320 degrees is fully equal to its shrinkage in vulcanizing; the deduction following that if the flask was properly packed, and closed in hot water, it would contain rubber enough to make a sound plate if none of it were allowed to escape. As gate-ways are usually cut, a constant escape of rubber is going on while the vulcanizer is reaching the vulcanizing point, with the result that if there was no change in it by vulcanizing there must still be a deficiency in the mold when it cooled to the amount of the escape into the gate-ways. A strong plea was then made for the use of spring pressure on the flask while vulcanizing, and it was shown that by cutting a circular overflow chamber around the mold, leaving a narrow edge of plaster around it perfect, so that the rubber would be imprisoned when the flask was closed, and by using spring pressure on the flask in the vulcanizer, the necessary conditions would be fulfilled, and the results would be very much more satisfactory, both to the operator and the patient.

Two plates were shown, which were vulcanized in the college laboratory at Ann Arbor, one in the ordinary way, and the other according to the process described. The two plates were counterparts, being made on duplicate models, with section teeth set at a considerable distance from the alveolar ridge and mounted in black rubber. When vulcanized, a bicuspid block was broken from each to show the difference between them. The one vulcanized in the ordinary way had a space under the teeth, so that a Swiss saw could be passed under all of them, even to the molars on the opposite side, and the pins of the broken bicuspid block were perceptibly loose in the rubber. The other plate showed the rubber to be in perfect contact with the teeth and the pins to be held firmly.

The changes in the plate after vulcanizing, by the contraction of the rubber in cooling were then noticed, and it was shown that they were much more marked when section teeth were used, on account of the very slight contractile power of the porcelain. The sections form an arch which diminishes in width by the contraction of the rubber inside it, with the effect of causing the plate to rock on the hard palate. The plate is, in fact, a little too narrow for the mouth; and if it becomes necessary to revulcanize it, the difference is often perceptible, and lower plates, after successive repairs and revulcanizations, will become so loose as to be unwearable. It was shown that the difficulty could be overcome by heating the plate enough to soften the rubber while its heels were forced apart by a stay, thus widening the arch and restoring it to its original dimensions.

Dental Register.

GUTTA-PERCHA AS A FILLING MATERIAL.

Dr. Arthur H. Stoddard, Boston.

There are cavities and conditions of the teeth where gutta-percha is unquestionably the best, as in other cases it might be the worst, material that could be used in filling. As a temporary filling in treating dead teeth, stopping canals, separating, etc., its value is acknowledged by all. But I wish to call your attention particularly to its value as a permanent stopping. It is no longer a theory, but a fact proved by experience, that I have been able to save many teeth by its use which could not have been saved by any other means. I refer particularly to very frail teeth of persons who, through neglect or improper treatment, have large cavities in the buccal or proximal surfaces of the molars or bicuspid. I

may add, however, that where they are subject to the wear of mastication, I almost always cap with oxiphosphate, but I usually prefer to fill without cutting down from the grinding surface when the cavity can be properly excavated without. Many times shallow cup-shaped proximal cavities without undercut can be filled with gutta-percha, when it would be impossible to insert gold or amalgam without cutting away considerable sound dentine.

Where I insert cement filling on proximal surfaces, I always build in the cervical wall with gutta-percha. This overcomes the liability to disintegration of the cement. I generally use gutta-percha in proximal surfaces in children's teeth, and sometimes in the fissures in molars, if for any reason cement or tin are excluded. In this manner the teeth can be kept along for years, till they become hard enough for gold or amalgam fillings.

The durability of gutta-percha fillings depends on the kind of gutta-percha. The method of manipulation, the manner of heating, the location in the mouth, the location in the tooth, and on the secretions of the mouth. In some mouths the surface of the gutta-percha decomposes to some extent. I recall one case where the surface of the gutta-percha became reddish in color, due no doubt to a fungus growth. When this is removed it remains white but a short time, and then assumes the reddish color again. It is now over three years since I first saw these fillings, and they are still in good condition.

The success of gutta-percha fillings depends greatly on their manipulation. The manner of heating is of the greatest importance. If heated so that it swells or blisters, it is ruined and should be thrown away. It should not be heated in an open flame, as the angles of the pellet become burned while the interior is scarcely warm. I use a metal or soapstone disk high enough above the flame to allow it to remain at about the necessary temperature for heating the gutta-percha, while the instruments can be heated to best advantage in the open flame, as they should be considerably warmer than the gutta-percha. It is advisable to wipe the cavity with rosin varnish and insert the gutta-percha in small pellets; when a little more than full condense with a warm flat instrument; after having carefully trimmed overhanging edges, smooth with linen tape slightly saturated with oil of cajeput.

The gutta-percha I use, though it is intended principally as a temporary filling, yet I use it occasionally as permanent filling in such places as the lingual surfaces of the lower molars. It softens at low heat, packs readily in the cavity, and does not drag; and it becomes quite hard after it has been in the mouth for some time. It is prepared from sheet gutta-percha, is cut into strips,

and allowed to stand to or three days in a solution of oil of cajeput and chloroform, equal parts. Then it is warmed till it becomes thoroughly soft, and plaster of Paris is added till it becomes about the consistency of putty. It may then be taken into the hands and kneaded thoroughly, rolled into strips, and allowed to remain in the open air till the chloroform and cajeput evaporates, when it is ready for use.

International.

THE IMMEDIATE TREATMENT OF THE UNCOVERED PULP.

Professor Louis Jack, Philadelphia.

When accidental exposure has been made, tincture of calendula, one part to four of water, should be applied as soon as bleeding has ceased. The pulp should then be immediately dressed and capped in the manner to be described later. If only a slight injury has been inflicted, the cavity may be filled at once with metal, having regard to the strength, the placement, and the fixation of the cap used to defend from compression, as will later be described. Here the fixation of the cap is best made by covering it with a broad mat of gold-foil; after adapting this to the margins one may proceed to complete the filling. In respect to this class of exposures there should be no concern as to the success of the treatment, providing the pulp was in a healthy condition at the time of the accident.

When the pulp has been fully recovered, the cavity should be washed clean with tepid water, securely protected from the fluids of the mouth with rubber-dam, dried, and lightly filled with a pledget of lint saturated with a mild disinfectant. From your knowledge of the causes of caries and of the concomitant invasion of the zone of dentine immediately beneath the caries by bacteria and micrococci, you will recognize that some means of sterilization must be resorted to. It is necessary in the treatment of ordinary cavities, hence you will perceive how much more it is here required. On account of the impatience of the pulp to medication, we have to be very careful in the selection of the sterilizing agent. There is none with which I am acquainted that is less irritating than hydronaphthol. This should not be stronger than 1 to 300 parts of water. The saturated pledget of cotton may remain in the cavity during the procedures of the preparation of the dressing paste, the selection of the cap, etc.

When these preparations are complete the cavity should be again dried, the drying being finished by a few puffs of warmed air. The point of exposure and the adjacent dentine is now

touched with a tent of lint, filled with carbolic acid and oil of cloves, āā. The effect of this is to coagulate to a superficial degree the point of exposure. This practice is largely empirical. It may be avoided where no disturbance has previously existed; but where there are evidences of irritation, it has appeared by my experience to be indispensable.

The first impression made on the minds of those who have been taught that carbolic acid is an irritant to pulp-tissue, is that this proposition would appear to be questionable. On this point I have had much experimental knowledge. In the treatment of earlier cases, under the prejudice that carbolic acid was irritating, I employed a weak solution of this agent. The results were not favorable, for the reason that in the dilute form it did not coagulate the surface of the exposed point, and was therefore liable to be absorbed, becoming consequently irritating to the pulp.

Pure, or nearly pure, carbolic acid combined with oil of cloves, as here recommended, at once produces slight coagulation of the surface of the organ, and appears from the absence of irritation to enter no further into the tissue. You will not fail to observe the sterilizing and anesthetic value of this combination.

In respect of the sterilization of the dentine, questions may arise whether this may be sufficient to cover the necessities of the case in this respect. First, whether complete sterilization is thus effected; second, whether the pulp may not already have become so far inoculated by bacteria as to render its normal condition an impossibility; and whether, under these circumstances, attempts of superficial sterilization of the dentine can be of any service.

You will not fail to keep in view that the treatment is confined to cases in which it is evident the pulp-tissue is probably not under much irritation. It is hyperemic, and consequently in a hyperesthetic state congestion has not occurred, nor does inflammation exist. Therefore, the inference is reasonably certain that after the soft caries is removed we may safely sterilize the surface of the dentine, and leave the vital force of the pulp to take care of whatever slight bacterial invasion may have reached that tissue. I assume here that your instruction has included the observed fact that healthy tissues have the power of mastering the invasion of non-pathogenic bacteria.

THE CAP.

A prominent feature in conservative treatment of the pulp is the means to protect it from pressure, and because of this necessity the means mostly used have given this mode of treatment the appellation of "capping the pulp." The object of the cap is the

avoidance of compression. Various means have been used to accomplish this. A common method has been to cover by a dressing the point of exposure; the bottom of the cavity being then lined with oxichlorid of zinc or phosphate of zinc, a coating of gutta-percha varnish being interposed between the dressing and the protective material. As this means is complicated, somewhat uncertain, not applicable in shallow cases, and in those very difficult of access, I have preferred to depend on a metal cap as being simpler and better under control.

This kind of cap not only insures to prevent compression, but serves to contain the dressing, which completely occludes the space between the cap and the pulp. These caps may be made of thin platina or of gold, the former being preferable. In form they should be circular to meet the generality of cases, and oval to accommodate broad exposures. They are most easily made by hunching them out with the round and oval leather punches of the hardware shops on the end of a block of hard wood. This action gives them sufficient concavity for the purpose. For ordinary purposes they should be quite thin, but when it is considered safe to use gold fillings the cap should be sufficiently thick to resist the force of the packing.

THE DRESSING.

It is necessary that the space under the cap should be completely closed, otherwise it would fill with fluid effused from the pulp, which quickly would undergo putrefactive changes resulting in the evolution of gas and consequently of compression of the organ beneath. In the earliest attempts at capping the pulp this became the condition, the only thought then being to protect from the pressure of the instruments. It was then generally supposed that the pulp underwent projection into the space and became strangulated, but all the indications now point to compression by gases being the cause of the disturbance.

The dressing I have found most acceptable is formed by rubbing up oxid of zinc into a paste with carbolic acid and oil of cloves of equal measure. The consistency of this should be such that, while being so plastic that the paste will flow out around the cap when it is gently pressed in position, it will not be so thin as to flow out of the cap when it is held on its edge.

The ingrediency of the dressing is based on these considerations. The menstruum is antiseptic, and possesses some anesthetic value. It also remains unchanged within the space, and in time becomes, from the dissipation of the menstruum, somewhat firm in its character. Therapeutic action of the menstruum is mild, and

is employed because it is slowly given up by the oxid of zinc, and, therefore, makes an acceptable dressing.

I would call your attention to the value of the combination of hypophosphite of lime with zinc oxid, $\bar{a}\bar{a}$, with the previously stated menstruum. This I have used in many of my earlier experiments, and have lately returned to it in less promising character than those considered within the lines of easy treatment.

PLACING THE CAP IN POSITION.

Placing the cap in position is a step in the treatment requiring care. It should be assured that it is of sufficient size to pass well beyond the borders of the exposed organ, and in the proximate cavities it should cover the pulp-wall of the cavity without intruding on the marginal walls. If there is a single exposure it should be round; if two corone are exposed, either two caps should be laid or one oval employed. In molars, usually where two points are exposed, two caps are generally best; in the bicuspid one oval under the same circumstances. The cap should be inserted edge-wise in such manner that as it is laid in place the excess of dressing may flow out at the margin toward the operator. This is to prevent excessive pressure, and to prevent air being included beneath the dressing, which would prevent complete apposition of the dressing with the pulp.

If there is easy access the cap may be laid in place with fine-pointed pliers—notably the Bogue plier; but, generally, it is preferable to previously coat the convex side of the metal with yellow wax, when, with an instrument adapted to the case it may be carried into position, and then placed in the manner described. It should next be pressed into position with sufficient force to bring the margins in contact with the dentine. Any excess of dressing should be taken away by light touches of an excavator, and when the cavity is to be filled temporarily it is better to fix the cap in place by flowing over it a little chloro-percha, which, when dried, prevents disturbance of its position in the filling procedure.

You should be careful that when the pulp is found exposed in a depression, as occurs sometimes in the molars, this depression should be filled nearly or quite to a level with the floor of the cavity by taking a little of the dressing on a suitable instrument and carefully filling this point; otherwise, when the cap is placed, the paste may not find its way into contact with the pulp. In a few instances, in my earlier experience, I have been obliged to go over the case and recap on account of this difficulty.

At the moment of placing the cap, as the paste is yielding under the gentle pressure of forcing the edges of the cap in contact

with the dentine, a little pain will be observed ; but, unless the paste is too stiff, no compression of the pulp will be caused.

FILLING THE CAVITY.

Whether the cavity be filled temporarily or permanently depends on the prognosis. This depends on the systemic conditions and the state of the pulp at the time of treatment.

To those of small experience in this line of treatment it would not be safe to attempt permanently stopping the cavity, except in accidental exposures, and in cases where no previous disturbance can be elicited. Even in the latter class it is generally best to delay permanent closure by a conductor of heat till after an experience of a year or more with a non-conducting stopping. At the end of this time the filling may be nearly all removed, care being taken not to disturb the capping, when, with suitable precaution, a metallic filling may be inserted.

I have many capped pulps beneath gold fillings, where they have remained, without the occurrence of any irritation, for many years. But the utmost caution must be used in making the selection of cases to be filled permanently at the time of the capping of the pulp.

Generally it is safest to fill the cervical part with gutta-percha stopping, carrying the material over the cap, and then to complete the filling with zinc phosphate. In this way, with an occasional renewal of this temporary work, cases may be carried forward from ten to fifteen years.

They may, however, be closed permanently and safely after an experimental trial of five years where no irritation has appeared.

This brings us to consider the conditions which take place with the pulp after the procedures which I have described. Concerning this there is no certain data.

Obviously the most desirable result would be the conversion of the exposed surface of the pulp into secondary dentine. This result I have known to take place within two years, and I have opened for examination cases which have been capped, without the occurrence of any disturbance beyond the occasional impressibility by cold for periods as long as fifteen years, where no such change had taken place.

That in many cases recovery is by secondary deposits my records present a considerable number of instances. It is not remarkable, however, that the pulps may remain in a state of quiescence for years, when it is considered that in slowly-advancing caries the pulp will often be exposed for long periods without the occurrence of any sign of irritation, unless, by the portion of the mouth of the cavity, the pulp has been subjected to the pressure of food.

It may be concluded that, whether the pulp becomes protected by secondary deposits or acquires complete quiescence, conservative treatment has considerable advantages over immediate devitalization. Still, in this connection, I must repeat the necessity for the careful selection of subjects to be treated, and also for proper regard to the apparent condition of the pulp itself.

AFTER-TREATMENT.

• It is presumed that the judicious practitioner has made careful selection of the cases to be treated conservatively, and that he will early decide on the evident condition of those which preclude recovery. Some of the most promising cases will not yield to treatment. This consideration requires close observation of the cases for some time after treatment. The patient should be instructed to return for consultation should reflected pain occur or should the teeth become impatient of cold applications. If this should be apparent, it is a sign of needed care to avert increased disturbance.

A most marked form of reflected pain is felt in the ear, and this frequently appears before the temperature sense has become aggravated. So much importance should be attached to this symptom of pulp disturbance that the first question to be asked a patient appearing with pain, or on approaching a suspected pulp, is: Have you had any pain in the ear of that side? Reflection to the ear occurs often long in advance of similar pain in other branches of the third pair.

Where the tooth has been impressed by cold, either before the treatment or afterward, an application should be made to the gum over the tooth, of tincture of aconit, two parts; chloroform, one part. The mode of application is important. A pledget of cotton or muslin to cover an area of one-half by three-fourths of an inch should be saturated, then squeezed out nearly to dryness between folds of a napkin to prevent an excess flowing over the mouth and with the saliva entering the fauces, to which it is extremely irritating as well as unnecessarily medicating the patient. Before the pledget is applied the surface of the gum should be cleansed of the coat of mucus covering it, otherwise the remedy will fail to come in contact with the membrane. It is equally important that dryness of the surface be secured. This application should be maintained for from twelve to fifteen seconds. If allowed to remain too long on the part ulceration is established. The general after-treatment consists in the repeated application of aconit, the application not being made at the same point more frequently than after intervals of forty-eight hours. When it is desired to increase the counter-irritation the gum may be scarified

very superficially by quick, light movement of a small scalpel. The patient should be instructed to avoid subjecting the tooth to extremes of temperature in either direction. The control period of conservatively-treated cases is within the first fortnight after the capping.

I have, however, had them appear after several years of complete quiescence with initial disturbances, and then yield to treatment. It sometimes becomes necessary to open the cases and recap. This usually occurs when in reviewing the case it is considered that some oversight has occurred. There may have been two exposures. The cap may not have completely covered the exposed part. There may have become compression from forcing the cap. It may have been displaced, the case may be determined to go down the gamut of irritation, and in despair we sterilize again and make another trial.

The most careful records of cases should be kept with a relation of the condition and of the controlling symptoms in a book kept for this purpose. Should subsequent irritation occur a new diagnosis may be formed from the recorded facts and the new conditions. I am careful to have this class of cases carried forward to the examination chart at each recurring periodic examination of the teeth. They are marked in symbol with red ink to prevent the unnecessary removal of temporary fillings, to explain the reason for their presence, and thus to avoid the accident of an unnecessary uncovering of the pulp in such cases.

International.

BONWILL'S ANESTHESIA —In the November ITEMS, 1894, is an essay on "Rapid Respiration to Cause Analgesia." The writer claims to remove teeth without pain by this method.

This brought to my mind something which, I think, will corroborate the above theory. After riding one mile in a bicycle race, and being almost exhausted, there was a collision, and I met with an accident, my leg being cut open for about six inches in length. I knew nothing of the cut till I had walked a short distance, when my leg began to grow stiff.

At another time I was playing "basket-ball" in a gymnasium, when my head came in contact with the head of another player. I saw the blood spatter on the floor, and supposed it came from the other player, as I did not have the least pain, but he was found to be uninjured. I then felt of my own head and found a large cut. I could give similar cases of others who have been hurt without pain. If my leg or head had been hurt while I was in my normal condition, I should have felt much pain at once.

C. E. Snyder.

OUR QUESTION BOX.

With Replies From The Best Dental Authorities.

[Address all Questions for this Department to Dr. E. N. Francis, Uvalde, Texas.]

Question 178. *Lady, sixty years of age; health good. Three years ago pain began on right side of face, near antrum, and radiated to whole side of face. Pain has been periodical, lasting about one minute, with intervals of two to twenty minutes between attacks. Two years ago her physician, after treating for neuralgia, advised the removal of all teeth, which was done, and artificial ones substituted, but pain continues. It has always been confined to the spring season. Pain is so excruciating it can scarcely be borne. There has been some swelling of face, and thick pus exudes from posterior nares—no redness of gums. What is cause and treatment?*

I think the trouble due to disease of antrum, but should not treat unless by examination I was sure of the fact.

C. H. Thorn, Brownsville, Texas.

It is difficult to diagnose such a case without careful personal examination. Without knowing the cause or source of trouble I could hardly suggest treatment required. The flow of pus from posterior nares would indicate disease of antrum.

Charles E. Francis, New York.

I think there is disease of antrum. Would open into antrum and treat. If no trouble is present very little damage would be done by the opening. There may be an impacted tooth. You fail to explain location of swelling, and do not state if it reaches the gums, therefore it is difficult to give positive treatment.

Henry S. Abendschein, D.D.S., Baltimore, Md.

The pain and exudation of pus indicates trouble in antrum. Open into it from the anterior region of first molar, cleanse with warm water and weak pyrozone, followed by a little cinnamon. Use cotton to sustain drainage, and do not irritate tissues by other treatment than that necessary for cleanliness, spraying the anterior nares with one of the alkaline preparations will overcome any catarrhal tendency which may be present. The cause of this condition may be anything which would irritate the mucous membrane—possibly the grip.

F. K. Hazellon, D.D.S., Trenton, N.J.

Without seeing patient it is difficult to make an intelligent diagnosis, but would suspect some antral trouble, complicated or aggravated by malaria, or trouble is increased when the system is in an exhausted condition. Deeming the trouble sufficient, I would open the antrum, expecting to find it distended with pus. Pus being present, I would wash it out with warm water and listerin, followed with H_2O_2 diluted, then the 5 per cent solution. Would place a drainage tube, and keep up treatment twice a week till there is no trace of pus on removal of plug.

Thomas W. Onderdonk.

Trouble is possibly caused by an impacted wisdom tooth. Make careful examination, and find out how many teeth have been extracted by asking patient, and I think you will find an impacted or unerupted wisdom tooth.

The exudation of pus may be caused from the palatal root of molar, or bicuspid being pushed into the antrum in an attempt to extract. Look well for the wisdom tooth. I refer you to page 212, Harris' Dictionary of Medicine and Dentistry, where he closes remarks in regard to eruption of teeth, "And sometimes they never show themselves," referring to wisdom teeth. It may be scrofulous. Hard to tell without seeing patient.

J. F. Johnston, Ruston, La.

I think it a case of abscess of antrum on side from which pain arises. Can not understand why it is confined to spring season. Pain is due to collection of pus which increases in quantity till pressure of same bursts through into nasal cavity. No doubt a valve, as it were, of mucous membrane, due to swelling from inflammation, stops the free flow of pus outward, and after pressure has temporarily been relieved by escape of pus the pain subsides. An opening should be made through process into antrum. Wash out with na. cl. and aq., to which has been added a small quantity of borax. Permanganate of potash is good as a deodorizer, while a powerful stimulant is found in a solution of chloride of zinc, grs. x to $\bar{3}$ aq., as a wash. Keep opening in antrum from closing by oiled tent.

A. W. Davisson, D.D.S., Ho'ly, N. Y.

From data given should suspect disease of antrum, and should prosecute a more thorough diagnosis in that direction. The fact that there is exudation of pus, as stated, points pretty clearly to abscess in the antrum, though other symptoms should be brought in verification. Treatment depends on what diagnosis indicates, but if satisfied that the trouble is in antrum it should be opened into freely and contents evacuated. Wherever pus is found antiseptic treatment is indicated.* *In the antrum medicaments should be mild* and non-irritating. Peroxid of hydrogen, or pyrozone, should be avoided till the cavern is freely opened (giving plenty of vent), and thoroughly washed out with warm sterilized water. All injections into the antrum should be warm. An opening can sometimes be made through the canine fossa, but is more often made about the position occupied by the second molar.

R. B. Tuller, D.D.S., Chicago.

Question 179. *What would you do for a child three years of age, with lower temporary molar decayed, pulp dead, and suffering with pericementitis? Parent wants tooth extracted, as child cries all night, but the latter objects to having anything done.*

Put the child under an anaesthetic, and extract tooth.

A. W. Davisson, D.D.S.

If child will not permit treatment, or the pericementitis does not yield readily, give gas and extract; using force if necessary.

F. K. Hazelton, D.D.S.

If a first molar, my advice would be, extract. If a second molar, save the tooth, if possible, till the eruption of the first permanent molar. With some children this would be practically impossible.

C. H. Thorn.

* We have underlined in Dr. Tuller's answers: "In the antrum medicaments should be mild," as no strong medication of the antrum is allowable except in very rare cases, and in all cases of inflammation, treated locally, we should guard against a too frequent application. A treatment which, at lengthened intervals, may prove successful, too often repeated will act as an irritant to prolong a trouble, or throw it into a chronic one, often difficult of treatment.—[E. N. F.]

Very young for a child to lose a tooth, but in this case I would hold the child and extract. When I know a thing is necessary, I do not always consult my older patients, and I know I would not lose time consulting that child. I would extract the tooth.

J. F. Johnston, D.D.S.

My treatment in such cases is to enlarge the cavity, wash out with H_2O_2 , paint the gums with aconit and iodin, and subsequently fill with amalgam, covering the bottom of cavity with German silver, to prevent the filling of root canals, and cut a vent for the escape of gas.

Thomas W. Onderdonk.

It is almost impossible to give proper treatment in the case presented, if the child will not permit the operation. Possibly a little patient coaxing might secure the child's confidence. If so, I would suggest cleaning the cavity thoroughly and applying carbolic acid or some other soothing antiseptic. When pain and soreness disappear, the cavity may be filled with a plastic stopping over a thin metallic cap, made to cover the pulp canal. To lessen the chances of future trouble, it is well to drill a small opening through the cervical portion of tooth on buccal side, extending to the pulp chamber, beneath the cap.

Chas. E. Francis.

In this case would first paint the gums with compound tincture of iodin, then after inflammation is reduced, would cleanse the tooth as much as possible, also the roots; care being taken with roots on account of large canal openings. After treating with iodoform and cajuput oil and everything is all right, fill the tooth with gutta-percha. If obliged to extract, I would use chloroform, no matter how much they kick at first, they usually succumb in about two or three minutes; does not take much, and enough to quiet them is usually sufficient. You have no idea how nice and quick it works till trying.

Henry S. Abendschein, D.D.S.

Probably long before this query reached me, if the tooth was not opened into or extracted, the child got relief through the breaking of an abscess. My treatment in such cases is to steady the tooth in some way—to avoid much as possible the pain caused by pressure and jar—and open quickly into the pulp chamber, through cavity, with a pretty good sized sharp round or bud-shaped bur. Wash out with warm water and, if need be, remove further débris with an excavator. A free opening will allow gas, and frequently pus, to escape, and will give very prompt relief. Soreness and swelling will then subside. The cavity should be loosely packed with cotton saturated with oil of cassia and left for a day or two. After soreness has disappeared, I usually fill such teeth by forcing a paste made of iodoform and oil of cassia into the pulp chamber and roots, with a pellet of cotton, finishing with gutta-percha. They seldom give trouble again; if they do, the filling is easily removed, the chamber washed out, ventilated and refilled.

R. B. Tuller, D.D.S.

Question 180. *Patient, twenty-eight years of age; good teeth as a whole, but lower right second molar is abscessed with fistulous opening on buccal side. Gum has receded, and part of process is absorbed. The tooth is alive and has been abscessed ten years. I have treated with pyrozone—but little success. What is best treatment?*

Extract tooth if abscess is in any way connected with it. Efforts to successfully treat will probably fail to be crowned with flattering results.

A. W. Davisson, D.D.S.

If any portion of the pulp is alive, destroy it and treat; if not, and the tooth can be properly removed, it is an excellent case for replantation.

F. K. Hazellon, D.D.S.

I should extract. If the party was very anxious to save the tooth I should extract it, and after removing all diseased parts and having filled pulp canals (through crown), replant. I believe this treatment, if well done, will most likely succeed.

C. H. Thorn.

I think it dental periostitis, and would treat it as such. Relieve congestion by counter irritants on gum or by bleeding, then treat with peroxid of hydrogen, followed with a treatment of equal parts tincture aconit root and iodine. Give systematic treatment if necessary.

J. F. Johnston, D.D.S.

Be sure there are no extraneous deposits beneath the gum. Inject with a Dunn's syringe, equal parts of listerin and peroxid of hydrogen, as far down the side of roots as possible, then inject iodine of zinc. Repeat treatment two or three times a week. Do the adjacent molars also possess living pulps?

Chas. E. Francis.

The tooth being alive, something else is the cause of the abscess. Look for cause first. It is possible for the pulp in chamber and one root to be alive and the other dead. I would destroy the living pulp, expecting to find one part already dead; in which case would treat as any other abscess, expecting to perfect a cure. Failing to do so, I would not waste time (as there is danger in delay) but extract tooth.

Thomas W. Onderdonk.

There must be a dead tooth somewhere—never have seen an exception but in case of one root being partly alive, and the other dead. In this case I usually kill the living nerve, open pulp canals with 20 to 30 per cent sulfuric acid (commercial) then wash out with bicarbonate of soda, after which dry out roots and apply peroxid of sodium, allowing it to remain about two days. In filling, I dry out roots, apply a small amount of cajeput oil, partly dry, then force gutta-percha points into roots, pressing it down firmly but gently, following with other points, and with warm instruments press firmly to place. I would put cotton or paper over the root fillings and fill main cavity with pink gutta-percha and allow the tooth to remain in this condition for a week, providing there was no more trouble before filling permanently.

Henry S. Abendschein.

If pulp is surely alive, as stated, the abscess is more than likely due to calculi, which has, perhaps, after causing absorption of process, lodged in between the roots of tooth—a difficult place to reach sometimes with any certainty of thorough removal. In other words it would seem to be a case of pyorrhea alveolaris. The treatment indicated in this event, is the removal of calculus and all portions of diseased alveolus, by heroic scraping and cutting, then follow with peroxid of hydrogen, or pyrozone and sulfuric acid (about 10 gts. of the former, to one of the acid) worked down about the roots with a thin tooth-pick or suitable shaped stick. Repeat two or three times a week, for two or three weeks. A second or third cutting and scraping may be indicated if there is not the proper response to the medicament after three or four treatments. In all such treatment, by patient, the use of some antiseptic mouthwash, several times a day, will facilitate the special treatment of the dentist.

R. B. Tuller, D.D.S.

PRACTICAL POINTS.

By Mrs. J. M. Walker.

Hemorrhage from Tooth Extraction.—The fluid extract of *geranium maculatum* will control any local hemorrhage if applied directly. * * *

Specific for Aphthous Stomatitis.—One application of trichloracetic acid is sufficient to stop further progress, if used on first appearance of mucous patches. *J. A. Dunn.*

To Remove Plaster Impression from the Tray When it Hangs.—Place a Bunsen burner on a folded towel; pass the tray (cup down) back and forth over the flame. Steam will be generated between plaster and tray, and it will pass loose and fall on the folded towel. *The Busy Dentist.*

Phenosalyl: Its Advantages.—Easy solubility in water; no danger of toxic symptoms; a pleasant and not persistent odor; no corrosive action on the skin; does not dry up the mucous membrane; has a specific action on the inflamed mucous membrane, stimulating the regenerative process. *Medical Standard.*

Removal of Superficial Decay.—Put on the rubber-dam; dry the cavity thoroughly with heat; apply chloroform, and then saturate the surface with paraffin. "After perfectly dry, soak them with heat and paraffin, and there is no possibility of their decaying again if you shape the tooth properly."

W. G. A. Bonwill.

Pulp Capping in Deciduous Teeth.—Rotate a round-faced burnisher with pressure, on a piece of thin platina resting against soft wood, till a little saucer-like depression is formed. Cut out this little cup, and fill it with a paste made of oxid of zinc, carbolic acid and oil of cloves, equal parts. Invert this carefully over the exposed pulp, and fill the cavity with oxiphosphate.

S. G. Perry.

Gold Corner for Devitalized Incisor.—Fill apex of root, and bring enamel margins to flat surface. Fit to canal a pin of fine gold, extending to biting edge. Adapt a piece of pure gold plate to surface of cavity, pass the pin through, and solder. Put in place, and build out corner with wax. Remove, and invest in plaster and marble dust. Work out the wax, and fill mold thus formed with 22k. solder. Cement to place, and finish off.

E. R. Vaughan.

Sensitive Dentine.—Moisten a pledget of cotton with alcohol, take up crystals of nitrat of silver and place in contact with the sensitive dentine, retaining in place by molding over it a gutta-percha cup. Leave in place for a day or two, when the dentine can be excavated without pain. *S. W. Foster.*

To Quiet Nervous, Apprehensive Patients.—Oil of winter-green—one to eight of alcohol—inhaled from a napkin, will often quiet nervous patients, so that you can work for them; when, without it, they would not tolerate even a mouth-mirror.

T. M. Allen.

Patching Amalgam Fillings.—Amalgamate the surface of the old filling, and lay on it a thickness of gold foil. Will make a perfect joint.

Pulp Capping.—To 15 grain solution chloro-percha, add $1\frac{1}{4}$ grains oil cloves, $\frac{6}{10}$ grain tannic, $1\frac{1}{4}$ grains carbolic acid. Make to consistency of thick cream; drop into the cavity and fill after chloroform has evaporated.

D. Anthony.

To Reduce a Sensitiveness of Dentine.—Fill the cavity with dry phosphate of sodium or bicarbonate of potassium, and seal up with wax. Diminution of sensitiveness will be very perceptible.

D. Genese.

Cast Solid Gold Cusps.—Place a small piece of moldine—best a little dry and stiff—on the soldering block; make the surface flat and coat with soapstone. Into this press the cusps of a suitable tooth. On the die thus made place gold scraps, filings, etc., and fuse by blow-pipe. While in the molten state press into the die with a flat-end carbon stick. Solid gold dummies may be cast in the same way.

L. C. Elkins.

Cement and Gutta-percha.—When I insert cement fillings in proximal surfaces, I always build in the cervical walls with gutta-percha. This overcomes the liability to disintegration of the cement.

A. H. Stoddard.

To Reduce Pulp Inflammation.—Apply bicarbonate of soda on a loose pledget of cotton, and cover with sandarac. Saturate the surrounding parts with chloric ether. *Dr. Williams.*

Diagnosis in Obscure Cases.—A small pledget of cotton wet with ether, and placed near the neck of each tooth separately, will promptly show which have living pulps and which have not. The rapid evaporation of the ether produces intense cold—agreeable to the inflamed part or where there is a dead pulp, but painful where there is a living pulp.

H. E. Beach.

Sterilizer for Burs, Broaches and Corundum Stones.—

Put a half dram pure trikresol in a small glass jar, and fill up with oil. Drop the instruments in after cleaning. When removed, wipe off excess of oil, the little remaining on the shank serving to keep the hand-piece of the engine well oiled. *T. P. Hinman.*

Antiseptic and Soothing Mouthwash.—In treatment of necrotic condition of the alveoli, the following mouthwash may be prescribed:

R.—Boracic acid..... dr. j.
 Glycerin..... fl. ozs. ij.
 Zymocid..... fl. ozs. iij.

M.—Sig. Teaspoonful in a wine-glass of water as often as may be indicated.

J. Henry Morgan.

Varnish for Lining Cavities.—Gum-mastich dissolved in chloroform makes a varnish which excludes all moisture and acts as a non-conductor.

J. C. Brewer.

Innocuous Cocain Anesthesia.—

R.—Muriate cocain..... 3 grs.
 Alcoholic sol. trinitrin..... 10 drops.
 Distilled water..... 2½ drams.

A hypodermic syringeful of this solution contains one-third grain cocain and one drop of the trinitrin solution.

Dr. Gautier.

Shell-Crowns.—In stamping the cusps of shell-crowns with the "Morrison Outfit," use a lump of wax with cotton over it, instead of shot as directed. This gives a better contour to the sides of the crown.

W. G. Browne.

Root-canal Filling.—Make a saturated solution of aristol in chloroform. Having cleaned and dried the canals, with a dropper fill with the aristol solution and quickly introduce a gutta-percha point in each canal. Simple, efficient and inexpensive.

Georgia Practitioner.

For Very Soft Teeth.—To harden the dentine under a cement filling, rub on a little tannin made into a thin paste with oil of cloves. Fill with oxiphosphate. The softened dentine soon becomes "tanned" and a permanent covering is made for the pulp.

T. B. Welch.

To Remove Remnants of Putrescent Tissue in Root-canals.—Force trichloroacetic acid into the canals. It destroys all tissues and purifies in a few moments' time. *C. N. Peirce*

ITEMS.

When making sheet wax in cold weather, add a small amount of Venice turpentine, it will be more pliable and less liable to break. Hard wax for crown and bridge-work, etc., is easily made by using gum, demar and wax; melting the demar first, then adding the wax, you can obtain wax as hard as you wish. Use carmine for coloring, sandarac varnish for coating impressions.

F. Messerschmitt, D.D.S., New York City.

ACME ROOT FILLING.—

Chloroform.....	℥i.
Oil cassia.....	gtt. x.
Gutta-percha.....	℥j.
Rosin.....	℥j.

It is par-excellence as a filling in abscessed roots of long standing.

I. B. Archer.

I thought the idea of making poorly-fitting plates stick with tragacanth was meant as a joke, but I know of a dentist who tries it. I think he may yet catch on to the art of dissolving old amalgam fillings in the mouth with quicksilver, and the science of curing pyorrhea with a prescription of nine ingredients.

J. W. Greene.

TO STOP A HEMORRHAGE FROM TOOTH EXTRACTION.—Clean the mouth of clotted blood; fill the cavity as solid as possible with cotton saturated with Monsel's solution; rinse the mouth with water, after which examine the cotton stopper or plug for a leak. If one is found, remove the cotton and repeat the operation. The mistake sometimes made is that the cotton is put in the cavity loose, to be easily forced out by the blood.

The Traveling Quack.

COCAIN ANESTHESIA RENDERED HARMLESS BY THE ADDITION OF TRINITRIN.—The author proposes the following formula, in which trinitrin is introduced, with the effect of preventing the anemia of the brain:

R.—Cocain muriat.....	centigrms. xx.
Alcohol sol. of trinitrin, 1 per ct....	gtt. x.
Distilled water.....	grms. x.

Each cubic centimeter contains two centigrams of cocain and one drop of the trinitrin solution. Gauthier has used this formula for two years with great satisfaction.

Revue gen. de Clin. et de Ther.

ITEMS OF INTEREST

The saddest, weariest, sorriest time
That ever springs beneath the sun,
And puts all tempers out of chime,
Comes when a holiday is done.

* * *

To be successful in filling teeth with gold, be sure to have your undercuts filled. To do this, small pieces of gold must be used to start the filling, large pieces do not fill them as solid as the foundation of a filling should be.

Traveling Dentist.

* * *

Mr. Lawson Tait is, probably, the most aggressive opponent of the germ theory of inflammation. He says that during his professional life he has learned and unlearned some four or five theories of inflammation, and predicts that the present prevalent theory—a phase of lunacy, coccophobia, he calls it—will soon go the way of the other theories.

Medical Age.

* * *

On page 624, Vol. XVI., ITEMS, I see Dr. George Evans' article, "A Removable Tooth Crown." I would add, as a suggestion, a cap crown—any kind of metal—could be coated inside with "chloropercha" before setting permanently; and "if necessary to remove the crown" it could be easily done by heating, etc.

C. L. Pullar, Prattsburg, N. Y.

* * *

He is wise who never becomes surprised or irritated by the advent of interruptions. Whatever it be—troublesome duties, illness, domestic sorrows—we all should be ready for the darkest hour. We require calmness, resignation, and a steady faith that God knows best what we need and what service we can best render. Some of our greatest achievements are in the passive side of life—not doing, but waiting and suffering. If the fire comes, let us remember that character, like gold, needs the crucible for its finest finish. In our aim to do, let us not forget that greater purity is needed for the greater achievement, and a patient endurance of interruptions contributes to the growth of purity.

J. M. Buckley.

* * *

The following are the officers for 1894-95 of the San Francisco Dental Association: President, Dr. C. E. Post, 14 Grant avenue; Vice-President, Dr. S. C. Pague, 819 Market street; Secretary, Dr. G. N. Van Orden, 14 Grant avenue; Corresponding Secretary, Dr. H. G. Richards, 931 Sutter street; Treasurer, Dr. W. A. Knowles, 118 Grant avenue; Librarian, Dr. J. E. Cummings.

EDITORIAL.

DIAMONDS IN THOUGHTS.

In several respects good thoughts are like diamonds. The diamond is the exquisite concretion of value, usefulness, and transcendent purity and beauty; so are good thoughts,—they are the sparkling scintillations of a mine of wealth. The diamond is secreted midst much that is worthless, and is obtained only by great labor; so many good thoughts are hidden in rubbish, and are sometimes quite below the surface, requiring long, tedious, dextrous labor to make them available. We do not find many diamonds, but a few are wealth; so we have few diamond thoughts, compared to the worthless that smother them; but a few, if carefully collected and brought into wise use, may enrich us for life. The diamond is not specially attractive till thoroughly stripped of its rough coat, and brought into artistic and precise shape and highly polished, which sometimes takes years of skilful labor. So to appreciate good thoughts much work must be done on them to bring them into their best service; it is one thing to have wise thoughts, and quite another thing to make them shine and glow, and cut our way through hard places. Many a diamond is laid aside in the rough, and therefore not appreciated; so with many a good thought, we have no conception of their value till matured. It is sometimes only after a diamond has passed from the finder that its true value is discovered; so the intrinsic worth of many of our best thoughts are not appreciated, and are tossed about and lost, till another picks them up and is enriched by them.

Oh, man, look for diamonds within your own possessions. They are there, and are too valuable to be ignored. You may have but few, and these few may be so rough and dirty and neglected, you do not recognize them. Seek them out, and put your best labor on them. Cherish them and they will enrich you; neglect them and you may as well not have them.

There is not one of us but may be made wealthy by our diamond thoughts.

Let me tell you a story. A traveler came to a desolate, neglected home on a desert plain for dinner, and to water and feed his horse for the long stretch of waste he was about to enter. As his beast drank of the brook running through the door-yard, he discovered a bright stone in the stream. He showed it to the servant, who took his horse, and remarked that he believed it valuable.

"Oh," said the young man, "there are two or three on the mantel of the sitting-room. The old man has often said that some day he would take them to town and see if they were worth anything."

"Where is he now?"

"Gone there with trinkets."

"How far is it?"

"Two days' journey. To-night he sleeps under the great palm."

True enough; the stones on the mantel, as the one he had found, and another he discovered in the stream, were diamonds.

As soon as he and his beast had made their noon-day meal, he hurried on to overtake "the old man." The curtains of night were falling when the weary peddler was discovered, making ready for sleep.

"Sir," said our traveler, as he approached, "I want to buy your home."

"My home," said the peddler, "my poor old shelter is no home. I have lived there, as have my fathers before me, in poverty, using the willows along the creek for baskets."

"Here," said the stranger, "I will give you enough to make you rich for your acres;" and he poured out more gold than the hermit had ever before seen.

"It is yours," said the old man, "with all there is in house and barn. Stay with me till morning, and we will travel on to the village and ratify the bargain."

That brook now washes many diamonds of great value from those barren acres,—diamonds which generations had trodden under foot,—diamonds in the very doorway of poverty.

My good fellow, there are greater treasures than diamonds hidden away within you and round about you. Seize them, bring

them to the surface, and polish them up. Bring them into the market, and be rich. Know you are wealthy in your seeming poverty; you are of importance in your seeming insignificance; you have now within you diamonds capable of giving you dignity, honor, and power. Bring your diamonds into the light and see them sparkle, rub up your rich gems and see them glow, make beautiful lenses of your hidden crystals, and see the vastness, the grandeur and the laughing joyousness of your possessions; for you are wealthy in your seeming poverty; you are of importance in your seeming insignificance; incalculable possibilities are before you though you do not see them. Bring them out; bring them out.

OUR CHILDREN'S LIFE CALLING.

Parents, let us not too rigidly seek to direct the course, the calling, the life work of our children. We cannot make a dog of a cat, a horse of a cow, a tiger of a lamb. Neither can we make our child what nature did not design him to be. He is made for some special sphere, and that sphere is awaiting him. It will be incomplete without him, and he will be incomplete without it. In any other sphere he may be a blunderer, a numbskull, a failure; but here an apt, clean cut success.

How many persons are out of their proper sphere, and therefore out of joint, misfitted, unhappy. And it is partly the fault of parents; they have not been properly directed in childhood; they have mistaken their calling as young men and women; they have drifted where they do not belong.

Some children give very early indications of what they were made for; others develop slowly; and some never seem to know what to do or what they can do. They are always children, never coming to maturity in a character or purpose.

If our child seems indifferent, awkward, and even incorrigible in what we think he should show interest, aptness, and pleasure, it may not be his fault. Do not be discouraged. Have patience; watch for hints; see which way the wind blows. Perhaps you are taking him in the wrong direction. What does he say of himself? Perhaps he does not know what he does want,

and flounders about wofully making failures. But you may be sure he is good for something, and that when he finds out that something he will go at it with a will. Once make an enthusiast of him, and you may be pretty sure he is on the right course. Not perhaps at the right work. It may be unprofitable and even mischievous; it may be only play—very foolish indeed; and yet it may give you a clew to what he will be good for. We all do many silly things before we become wise; we make many failures before one success; we get lost many times before we can walk skilfully through the woods.

And while we are doing all this, let us keep our children from baneful influences; from degenerating habits; and from degrading companionship. Let us teach them industry, thoughtfulness and sound principles. Let us seek to elevate their moral tone; their esthetic taste; their spiritual aspirations. These should be the foundations of every pursuit; of every sphere; of every success.

But if you are a dentist, a doctor, a lawyer, a merchant, a mechanic, a farmer, be sure to give your boy a good insight into your own calling. It will be a good thing to fall back on in time of need, even if he does not choose it as his life work. And do not forget the girls. Make them useful, let what will come; teach them to be skilful in common things and in some thing uncommon; beget in them a pride to be self-dependent; an ability to stand alone if that is necessary, so as to make a success of life even under adverse circumstances. There are special spheres and work, and golden opportunities for girls as well as boys, and more and more of them as true civilization increases, and we are fast coming where we recognize special fitness, and genius, and equal compensation for our girls, and we boys must be careful or they will shove us aside in some things we now in our arrogance call our work.

Self-will is not always strength of will, and a man may be implacable without firmness of purpose. Stubbornness is not force, nor selfishness power. A kind of yielding disposition, ever giving the advantage to the weak and deserving, and forbearing recompense and praise, is in itself firmness and strength, a force and a power.

HAVE A HOME.

"Home, home ; sweet, sweet home,—be it ever so humble,
There is no place like home."

If you have not one, get one ; for a boarding-house, or a club-house, or a castle, be it ever so grand, there is no place like home. And, mind you, if your business cannot make a home, you have no business with your business. Get out of it as soon as possible, and get a business that will lead to a home as surely as the needle points to the pole. Nothing will give you contentment and pleasure and development, like a good home of your own. No condition of life that has not this retreat of love as its central attraction should content you ; for a life without a home, is one of lonely wandering on this wide world's waste, though you may pick up from that waste stones enough to deceive you into believing you are rich.

Don't wait till you are "nicely fixed" before you think of a home of your own, for you will never be settled, either in what you are or do, till you have your own dear home.

If it is your own sweet, sweet home, it will establish and content and prosper you as nothing else can. It will develop your character, give force to your energies, and inspire your spirits. It will give distinctiveness to your purpose, skill to your efforts, and positiveness in aggression and strength to all you do. It will be a wonderful rest from weary labor, a quiet asylum from cankering trouble, and a lovely retreat from the strains, perplexities and trials of business and the outside world.

A dentist, who, above all others, has constantly to do with the pain and nervous strain of the afflicted, should have such a retreat,—a sweet, sweet home.

A thorough training in the correct use of the English language is a power few understand. Many men have good thoughts, but they lack the power of distinct, intelligent, terse utterance. Yet, there are few who might not rivet the attention of his audience or his reader if he would thoroughly study his native tongue—the richest, simplest, and the most powerful on earth.

HINTS.

Dr. L. Henley, of Marshall, Texas, treats healthy exposed nerves by covering them with loosely folded tin foil dipped in campho-phenique.

* * *

Clap-trap arrangements, sensational inducements, and advertising schemes, may give temporary advantages, but if you would have a reputation and a business that shall be permanent, do work that shall advertise itself and make every patient your advertiser. It is not how many visit your office, nor how many you work for, that builds up a good practice; it is the good impression you and your surroundings make on your visitors, and your good work, that tell. Be a gentleman in your character and deportment, do right down honest work, make close friends—these will build up a business that will flourish and abide.

* * *

All of us are, or may be, strong in something; but how often we find men of fine intellect failing in life through weakness of will, while some of moderate intellect succeed through strength of will.

Without strength of will intellect has little effect on work or character. The intellect, as the eye of the soul, may see and enjoy great things, but it requires the will to apply them to useful purposes. The intellect, by its internal working, may convert knowledge into wisdom, but it requires the will to give it force in the world. The intellect may be a monarch, but it must have will as its executive minister.

* * *

Be careful of your promises. Young dentists especially are liable to be sanguine, and many patients expect too much. By the way some talk we would suppose a tooth after being filled ought to be better, and last longer than one that has never been decayed; and by the way some dentists boast of their work, patients are led to believe they have improved on nature. Both are unreasonable, and neither will be realized. In your warrant be modest and moderate. At first you may be misunderstood, and some of your patients may be inclined to go to one who will give a better guarantee, but if your work proves a little better than your guarantee, your reputation will be better than your promises, and this will establish you as an honorable man and a conscientious workman.

FOR OUR PATIENTS.

TRUE NOBLENES.

'Tis only noble to be good;
Kind words are more than coronets,
And simple faith than normal blood.

Tennison.

Yes, coronets of kindly hearts,
With nobleness of good intent,
Makes kings of paupers, and imparts
A diadem of ornament.

'Tis not the pride of gold and praise
That makes us rich in store;
There must be character and grace
And goodness to the very core.

A childlike faith that rests in love,
And love that rests in faith, is crowned
With wealth of angels from above,
And here and every where renowned.

Welch.

THE TONGUE IN DISEASE.

Dr. F. L. Gerald, in *Herald of Health*, says: The tongue is of great diagnostic value, and by close observation it will give us valuable aid in determining the character of disease. The tongue tells us of the condition of the blood, the condition of the nervous system, and the functions of nutrition and excretion. As these are important things to know, in fact just what we want to know, we will make the tongue talk as plainly as possible. We find the expression of disease in its form, its condition of dryness or moisture, its coatings and colors. Change in form is expressive of disease. The elongated and pointed tongue indicates a condition of irritation and determination of blood to the stomach and bowels, and it is safe to give it full weight, and be careful in the administration of remedies.

As it is associated with excitation of the nerve centers, this evidence is valuable with reference to the stomach and bowels. If we observe this change of form at first, we not only anticipate unpleasant gastric irritation during the sickness, but it puts us on

our guard against using anything that will irritate the stomach and bowels. The full tongue, broad and thick, is evidence of atony, want of action in the digestive tract. Then the stomach will bear cathartics in mild form without danger. The dry, pinched tongue expresses a want of functional activity in the digestive organs. It is the tongue of acute disease, and is usually associated with dryness. While it is one of the indications for food, we must be careful in its selection, giving small quantities at a time, and in a warm liquid form.

The fissured tongue in chronic disease indicates inflammatory action of the kidneys. The fissured tongue in advanced stages of acute disease refers us to lesions of the kidneys, or irritation of the nerve centers. In many cases we find a wrong in the secretion of urine. It deserves close attention and means to put the skin in better condition, and allay irritation of the nerve centers. Dryness and moisture are important evidences of the condition of the digestive organs. If the tongue is dry, we are sure the stomach and intestines can do but little digestive work. It is absurd to employ cathartics in such cases, unless the object is simply to remove irritating matter. In acute disease with dryness of tongue, when we find it becoming moist, we are confident of improvement, and it is nearly always looked on as a favorable symptom.

The thin, transparent coating of the tongue gives evidence of enfeebled digestion, frequently from intemperate eating and drinking.

A heavily-loaded tongue at the base calls attention to accumulations in the stomach, and suggests the use of an emetic. The broad, pallid tongue gives evidence of a want of the alkaline elements of the blood. It may be the basis of the entirety of the disease, which will fade away as soon as the proper alkali is given, or it may be but a portion of the wrong, and the alkaline salt prepares the way and facilitates the action of other remedies. The deep red tongue, generally dry, indicates an acid. A dirty white or dirty gray tongue means antiseptics.

While dryness always indicates excitement of the nerve centers and calls for sedatives, too much moisture and relaxation is evidence of the opposite condition.

The Medical Brief.

THAT'LL MAKE 'M "GIT."—If too many patients would patronize you, and you can't get rid of them by keeping a dingy, dirty office, and wearing seedy clothing, just whiff your breath into their faces—that'll make 'm "git."

J. W. Greene.